UTILIZING INSTRUCTIONAL TELEVISION

TEACHER'S MANUAL FOR DEMONSTRATION KITS

NAEB

NATIONAL ASSOCIATION
OF EDUCATIONAL BROADCASTERS
WASHINGTON, D. C.

TEACHER'S MANUAL

UTILIZING INSTRUCTIONAL TELEVISION

DEMONSTRATION KITS

produced for

National Association of Educational Broadcasters

by

RADIO - TELEVISION - FILM
The University of Texas

This project was conducted pursuant to a contract with the

U. S. Office of Education
under the provisions of Title VII
National Defense Education Act

"The last 10 years have been the decade of exploration in educational television. NOW WE ARE ENTERING THE DECADE OF UTILIZATION."

. . . The Reverend John M. Culkin

Host-Narrator
Communications Demonstration Center
Hall of Education
New York World's Fair

Single Copy, $2.50. To NAEB Individual Members, $2.00.

WE'RE GLAD YOU HAVE THIS KIT . . .

. . . and we hope you will see others in the series, because we believe these materials can be of practical value to you who are now working with or who contemplate working with television in the classroom.

Certainly your interest in investigating these resources represents an encouraging trend in education today . . . a healthy open-mindedness toward new approaches, when our familiar, traditional habits have proved inadequate or inappropriate. This becomes increasingly important as the swiftly-shifting dimensions of twentieth-century life continue to demand, in those who help youngsters learn, an alert capacity for enlisting new resources and putting them to work in the most efficient ways possible.

One of these resources is instructional television. As we explore ways of getting at its best performance, experience indicates that this helpful medium does not bestow identical blessings in all cases, and we are beginning to see why it may succeed in one classroom to a greater extent than in others and appear to favor some teachers or school systems more than others.

The plain truth is that instructional television works best for those who know how to use it. The object of these kits is to help you join the ranks of those who know, for this is no mysterious body of knowledge, no complex system of new and hard-to-learn techniques. As you view these films and see television taking its place in the classroom, see good teachers working with television in effective ways, you will likely discover that you are already prepared to use it properly. The methods are those which all good teachers know well. Clues to some of the answers are found within you, yourself, in your own personal strengths and weaknesses, your particular capabilities, and your special interests.

You need only acquire some new ways of thinking about yourself and your important work, some guidelines for organizing the help at hand into more useful patterns. We think you will find that in seeking out television's best ways of working, you will have discovered yours, too.

These Demonstration Kits are distributed by:

National Association of Educational Broadcasters
Washington, D. C.

Additional information may be obtained by writing to:

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INTRODUCTION

These Demonstration Kits have been designed in answer to continuing, insistent requests from many people who need help in utilizing instructional television or in teaching others to do so.

The series consists of six coordinated demonstration kits. Each kit contains a film, supplementary resource material, and this TEACHER'S MANUAL, and deals with a particular aspect of television's use in the formally-organized instructional routine of the classroom.

Although each kit is self-sufficient and may be used individually, the materials have been designed as a coordinated whole, with each unit an extension of the others. Points which are considered extensively in one kit may be touched on only briefly in another. Certain fundamental emphases, basic to an understanding of instructional television's role in the educational process, are to be found in all of the kits. It is recommended that the films be viewed in sequence. The impact will be greater and the total contribution more meaningful when all of the films are seen and when they are seen in their intended order.

The design of these resources and the plans for their use assume the availability of a competent educator who may have little or no background in television or its instructional uses but who . . .

. . . makes arrangements for the demonstration and assumes responsibility for its materials

. . . prepares the group for viewing the film

. . . overseas the film presentation

. . . guides the activities related to the demonstration.

The kits have been planned primarily for in-service and pre-service use by special groups. They might be used in teacher's meetings, seminars, workshops, and college or university classes. Though these materials perhaps speak most directly to experienced classroom teachers skilled in a variety of instructional procedures but unaccustomed to working with television, they are intended as well for beginning teachers or teachers-in-training. They have much to say also to administrators who are exploring the feasibility of using instructional television in their school systems or who recently have inaugurated its use.

Differences in locale, experience, interests, and objectives among the viewers suggest that, in planning the activities which extend the filmed presentation, the program chairman will take these differences into account and plan the local presentation which he considers to be most effective.

The basic body of content in the kits is limited to the instructional uses of television in elementary, junior high, and high school.

Care has been taken to avoid undue concentration on any particular area or areas in the curriculum. Rather, emphasis is upon the range and variety of television's contribution to many subject matter fields and to broad areas of understanding.

Emphasis in the films is on demonstrating utilization procedures as they are worked out in the classroom, rather than on "talking ABOUT utilization while showing only television lessons."

As in the utilization of a television lesson what you do with these kits depends upon the specific objectives for your particular group, as well as upon the general objectives toward which the kit was designed.

- Who are the members of your group?
- For what purpose are they watching the film?
- What do you want them to do or to be able to do as a result of this experience?
- Do the viewers themselves know why they are seeing the film and what you expect them to get from it?
- What are the best ways to use this material to accomplish your aim?
- Your entire demonstration will have much more meaning for the participants if you have the answers to these questions clearly in mind before you determine your procedures, and if you make the answers clear to the viewers before they see the film.

It would be wise to give some thought also to the personalities in your viewing group, insofar as they are known to you, and to your own experience, attitudes, and capabilities. All of these considerations have a significant bearing on what you do and how you go about doing it.

TITLES OF INDIVIDUAL KITS IN THE SERIES

Kit No. 1 "What Television Brings to the Classroom"

Kit No. 2 "The Role of the Classroom Teacher"

Kit No. 3 "Preparing the Television Lesson"

Kit No. 4 "Promising Practices"

Kit No. 5 "A Case Study in the Elementary School"

Kit No. 6 "Examples in the Secondary School"

BACKGROUND

The impetus toward learning suggested by television's introduction to the classroom was slowed by an early undertow of inexperience among those who prepared lessons for the new medium, those who presented the lessons on screen, and those who received them in the classroom.

By experimentation, careful observation, and realistic evaluation, these pioneers found increasingly effective ways of bringing this versatile new resource to the service of learning. What they discovered was important to the ultimate success of a promising educational tool and thus to education in general. Certainly the contribution of television in the classroom would be strengthened considerably if others coming new to this "partnership" could start with such hard-won experience already at their fingertips.

There was no way to put it there. Personal demonstration by the relatively few who were skilled in utilization techniques was clearly unfeasible on any broad scale. The growing body of literature was helpful to a degree, but teachers profited far more by seeing successful utilization in process.

Seeking ways to close this "utilization gap," the National Association of Educational Broadcasters called together educational broadcasters, representatives of teacher-training institutions, consultants from school systems where instructional television was an established fact, and authorities in the fields of education and school experimentation. Outspoken and wide-spread interest in utilization materials,

reflected in this Seminar on Instructional Uses of Radio and Television (Purdue University, July, 1958) and from other sources as well, prompted further activity.

A feasibility study, inaugurated and coordinated by the NAEB, demonstrated an extensive and existing need for materials designed to improve the utilization of instructional television and indicated the form which such materials should take. As a result of this study and a proposal made on the basis of its findings, the National Association of Educational Broadcasters entered into a contract with the United States Office of Education under Title VII of the National Defense Education Act to produce such materials.

In March of 1963, members of a special NAEB Utilization Project Advisory Committee, with Consultants from the United States Office of Education and the national headquarters of the NAEB, met to determine the scope, content, and design of the proposed Utilization Project materials.

As a first step the Committee discussed and enunciated a philosophy to guide the development of the kits. The points of this philosophy are shown below:

Major Premise: Instructional Television can make significant and urgently needed contributions to the nation's classrooms when wisely and efficiently used in a climate of constructive cooperation.

Supporting this premise, the Demonstration Kits were planned and prepared on the basis of these shared convictions:

- The classroom teacher is vitally important to successful utilization of instructional television.
- The educational process can be supported to different degrees by instructional television. (For a description of the different degrees or levels of support see Appendix A.)
- Each degree of support by instructional television requires a different level of participation on the part of the classroom teacher.
- Instructional television is not intended to replace other instructional tools or methods, but to take its place in the total learning experience, as part of a carefully-coordinated approach to learning which employs the resource appropriate to the need and the instrument most appropriate to the objective.
- The role and functions of television in the classroom are not rigidly prescribed. Ideally, they stem from existing and defined needs and are tailored to the specifications which such needs suggest.
- What is done with television in a particular instructional situation depends in large part upon what those involved with its development, selection and utilization need it to do and want it to do.
- Production or selection of televised instructional materials appropriate to the intended goals is an important aspect of utilization. It is equally important that administrators and teachers understand and remember . . .

  . . . what these television lessons were designed and intended to do in the particular situation, and

  . . . the inherent strengths and weaknesses of television as an instructional tool.
- The quality of instruction received through television is determined by the quality of instruction which is put into television. It is a MEDIUM of instruction.

ABOUT THE KITS

Each of these Demonstration Kits covers a particular aspect of television utilization and, though essentially complete within itself, is closely related to and is an extension of the other units in the series. Each kit contains the following resources:

FILM

A 16 mm sound film, in color, approximately 30 minutes in length. Each film deals with a different aspect of utilization and is the major element supplied in the kit.

TEACHER'S MANUAL

A copy of this manual is included as the major resource among the supplementary materials in the kits. The manual contains general information about the kit series as a whole, specific suggestions appropriate to the use of each kit, and special materials helpful as orientation and background.

The user will receive the Teacher's Manual approximately two weeks before the scheduled use of the first kit. This copy of the manual can either be kept or returned. If it is returned it should be mailed with the last kit used. If you want to keep the manual, return the order card enclosed.

SUPPLEMENTARY MATERIALS

These will differ for each kit. They will include such things as sample teacher's guides, outline of utilization procedures used in the demonstration, pamphlets and brochures for distribution to the class, sets of notes which can be duplicated and distributed to the class. The specific materials to be included will be discussed in the section dealing with each kit.

We suggest that you first read the MANUAL thoroughly. This general section tells why the series has been developed in this way . . . the philosophy on which it is based . . . the sequence of ideas in the

films . . . their relationship to one another . . . the reasoning behind this organization . . . their combined implications for successful utilization of instructional television in the classroom.

It is important to remember that each of these films, though complete within itself and capable of being used alone, is also part of a larger complex and an extension of the other films in the series. An aspect of utilization which may be treated only briefly in one film will be developed more fully in another. You can help your viewing group to see this film in its proper context if you are familiar with the content and special emphases of the other films and the contours of the total series.

After reading the general section you will want to study the section which is relevant to the particular film and materials in the kit to be used. Though some of the suggestions may be applicable to several units in the series, most of those made in each section relate to a specific kit.

If possible, preview the film itself. However, from this manual you can get essential information about the nature and organization of the film, its purpose and design, the general statement it makes, and the utilization procedures demonstrated. If you know what this film is intended to be and do, you will be better prepared to help the viewing group realize the maximum returns from this experience.

The viewing group's perspective is assumed to be that of classroom teachers who have had little or no opportunity to work with television in the classroom. As you watch the film with the group, remember that your viewpoint is assumed to be that of a teacher wholly familiar with classroom procedures, but inexperienced in the use of instructional television.

Bear in mind that the classroom sequences in the films do not attempt to mirror the full reality of the classroom. They are telescopic versions of what takes place, models foreshortened in time and pace and process, a selective sequence of high points offered only to SUGGEST the full and complete routines of the classroom.

Preparation...lesson...immediate follow-through...long-range follow-through...are not the separate and distinct processes which these terms may suggest. They are the merging and interwoven elements of a total process by which the classroom teacher and all the other resources of the classroom help children learn. These terms are used only for clarity in communicating about these elements.

As you view this film, keep in mind your reasons for doing so. Also keep in mind any special points or procedures for which you are asked to be alert, and what you expect the viewing group to do as a result of the viewing experience.

Note any aspects of the filmed demonstration which trouble or confuse the viewer. By doing this you will be prepared for clarification and evaluation later.

Watch the film with a flexible and receptive attitude. The classroom situations shown may be different from the ones with which you are familiar, but they may suggest ideas which can be adapted.

LIST OF EQUIPMENT NEEDED FOR THE DEMONSTRATION

Sound-On-Film Projector, 16 mm, preferably with easy start-stop or back-up mechanism

Projection Screen, properly placed for unimpeded viewing by all participants

Lectern or table for your presentation, with a sound system where necessary

Take-Up Reel, 1200' Capacity, for each of the films you will be showing

Room which can be darkened for proper viewing

Projectionist, if you do not plan to run the film yourself

Lectern Light, small clamp light, or small flashlight for reading your notes while the film is in progress

Small Table for displaying Supplementary Materials.

Audio Visual Center, Indiana University

This Center publishes an "Educational Motion Pictures" catalogue which includes films of programs originally released on Educational Television Stations through N.E.T. These programs are now available for audio visual use through Indiana University.

Write to: Audio Visual Center
Indiana University
Bloomington, Indiana

Center for Instructional Television

This Center is a part of the Eastern Educational Network, and distribution of their programs is limited to the area covered by E.E.N. For information as to what is available,

Write to: Center for Instructional Television
575 Technology Square
Cambridge, Massachusetts 02139

Educational Television Stations

Several educational television stations are distributing their recorded television series. Among these is KQED is San Francisco. For further information,

Write to: Raymond L. Smith, Director
Instructional Television Department
KQED-TV/Channel 9
525 Fourth Street
San Francisco, California 94107

Great Plains Regional Instructional Television Library

Serving 12 states in the Great Plains area, the Library distributes information on series that they have available for use on instructional television. They are also a repository for sampler kits in instructional television materials. Under some circumstances, distribution is extended beyond the 12-state Great Plains region. For information,

Write to: Great Plains Television Library
University of Nebraska
Lincoln, Nebraska 68508

Midwest Program on Airborne Television Instruction

MPATI produces and distributes many series of instructional television lessons. For information about the content of each course, the intended grade level, and the television teacher, plus details about rental charges and how sample taped resource-material units may be obtained for preview,

Write to: Dr. Herman L. Shibler or
Mr. William E. Fagan
National Distribution
Midwest Program on Airborne Television Instruction, Inc.
Purdue University, Memorial Center
Lafayette, Indiana

Midwestern Educational Television

An organization of educational television stations within the six-state area of Wisconsin, Minnesota, North Dakota, South Dakota, Nebraska, and Iowa. Program materials are generally available within these states. For further information,

Write to: Midwestern Educational Television
c/o K T C A-TV/Channel 2
1640 Como Avenue
St. Paul, Minnesota

National Instructional Television Library

This Library in conjunction with regional libraries, publishes "A Guide to Films, Kinescopes, and Video Tapes Available for Televised Use." This Guide describes television courses which are available in recorded form. It is also a catalogue of "sampler kits." Each sampler kit contains a 16 mm kinescope recorded film of a representative lesson in a series and two sets of related printed material.

Write to: National Instructional Television Library
10 Columbus Circle
New York 19, New York

KIT NUMBER 1

WHAT TELEVISION BRINGS TO THE CLASSROOM

At the time this manual was printed, the material for Kit Number 1 had not been released. A supplement will be issued when the Kit is ready.

WHAT TELEVISION BRINGS TO THE CLASSROOM

Purpose

The film in this kit encourages the viewers to see television in its larger dimensions and in its proper context as an important instrument for the communication of ideas. Television is portrayed as another in the long line of efforts to improve the learning process. Without suggesting that television is the "be-all end-all" of classroom resources, that it is without problems, or that it is generally superior to all other learning resources, the film reflects some of television's unique advantages and pictures some of the things which television does with particular effectiveness.

Film Synopsis

The narrator suggests that you watch television doing some of the things it can do, bringing some of the things it can bring to the classroom, while you (the viewer) consider which, among these, would make the greatest contribution toward solving your problems, toward helping you, your classroom, or your school system move closer to your goals.

The major part of the material shown in this film consists of illustrative excerpts from television lessons of outstanding quality which have been used in the schools. The narrator discusses briefly what each

excerpt illustrates and makes reference, where appropriate, to the nature of the problem involved or the need fulfilled. These excerpts demonstrate the technical advantages of the medium which add impact, focus and clarity to any presentation. In addition, they show television's capacity to bring unusual or inaccessible materials into the classroom with a minimum of difficulty or delay. Reference is made also to the special learning opportunities which television can offer to special groups.

KIT NUMBER 2

ROLE OF THE CLASSROOM TEACHER

At the time this manual was printed, the material for Kit Number 2 had not been released. A supplement will be issued when the Kit is ready.

ROLE OF THE CLASSROOM TEACHER

Purpose

The film in this kit is designed to demonstrate that the role of the classroom teacher is crucially important to the maximum utilization of instructional television. In relinquishing the pressures of day-by-day presentation, the classroom teacher need not yield control of the learning situation. By demonstrating the essential and varied functions for which the classroom teacher is responsible and for which the classroom teacher alone is qualified, the film develops an image of the classroom teacher's role as highly specialized and vital.

Film Synopsis

The classroom teacher and the television teacher are shown in a working "partnership of specialties." The television teacher is shown as the specialist responsible for presenting the common body of knowledge which all the pupils must have. The classroom teacher is shown as the specialist who creates the learning climate, directs the classroom activities, adjusts the lesson to this particular class, and accounts for group needs and individual interests.

The film demonstrates the dimensions and quality of support which television can make available to the classroom teacher enabling him to concentrate his skills and time on the important tasks of guiding, counseling, leading, and inspiring his students.

Kit Number 3

PREPARING THE TELEVISION LESSON

A kit of materials which demonstrates the special considerations involved in the preparation of a television lesson for the classroom, the extent of the time and care involved, the steps in preparation and production, and the utilization elements represented in lesson planning and development. The film in this kit takes the viewers through the major steps in preparing a third-grade science lesson for television.

PREPARING THE TELEVISION LESSON

A lesson presented on television has a responsibility over and beyond able presentation. When properly prepared, it opens many doors to important classroom learning activities. By its very design, it enlists the active and indispensable help of the classroom teacher.

The film and supporting materials which this kit contains have been designed to demonstrate that utilization is not an artificial "something" "tacked-on" to the instructional lesson as an afterthought but a dynamic process which develops naturally from elements carefully and skillfully incorporated into the lesson structure.

The activities which precede, accompany, and follow the lesson itself are part of a blend of pupil experience and behavior which has learning as its sole objective. A properly prepared television lesson recognizes this fact.

Television lessons are utilized most effectively when they have been developed for specific purposes in answer to existing classroom needs. The success of the television lesson will depend upon how well it does the job which needs to be done. The success cannot be measured simply by watching the lesson on screen, no matter how impressive the presentation may seem to be. The final proving ground is the classroom, and the ultimate criterion is what happens to the students.

In preparing the television lesson, those who participate in the preparation must achieve a balance between presentation and content.

Everyone must be aware that TEACHING is the process involved, and LEARNING is the objective toward which it is directed.

When properly structured, the instructional television lesson invites, encourages, and prepares the way for the classroom teacher's specialized contributions. It is in the classroom teacher's face-to-face relationship with the individual pupils that the television lesson's potential for learning is realized. Conversely, this potential can fade with the image on screen when this relationship is absent.

Film Synopsis

The development of an instructional television program goes through many stages. Much work needs to be done in the selection and evaluation of the material for the lesson before the actual studio production can begin.

The film in this kit traces the preparation of an instructional television lesson in its latter stages. For the purpose of this film it is assumed that the lesson ideas have been developed and evaluated in light of specific classroom needs, and that the Teacher's Guide to accompany the programs has been prepared.

The film opens with the beginning of the lesson on a television screen. The setting is an underwater village on the Continental Shelf. Into this scene, comes a diving saucer invented by man to help him explore the ocean's depths.

The television teacher discusses the elements in man's natural human environment that must be carried with him if he is to survive in the ocean's "inner space."

Next is the interior of "Starfish House" which is man's undersea home and laboratory. The teacher uses her entry into the house in a diving suit to set up a science lesson.

In the "laboratory section of 'Starfish House' " she talks about the starfish and other ocean creatures equipped to eat and to breathe underwater. In contrast, man who is not so equipped must use his brain to solve the new problems which he meets under the sea if he is to survive there.

At this point the scene shifts to reveal the television studio, showing the setting, the cameras, the microphones, studio props, and the television crew at work. The narrator explains this important side of creating a television lesson and introduces that important "blueprint," the Teacher's Guide. The importance of the guide unfolds as the narrator discusses how it was developed and the use made of it by the classroom teacher.

The next move is to the television teacher consulting with an oceanographer. The guide is an important part of the episode which shows how the specialist helps to shape a program. The specialist in the meeting suggests specific areas which might be developed after basic facts have been established.

The film then follows the television teacher as she confers with the television producer-director to determine how the materials can be presented most effectively. The art director enters the planning as they work out graphic details.

As the preparation continues, decisions are made about the locale of the science lesson, about the nature of the experiment to be included, and the illustrations to be used.

A "behind the scenes" look at a start-stop rehearsal demonstrates the care taken to see that the lesson is clear, logical, and properly presented. This vivid process is the culmination of all the planning, the screening, and the hard work reflected in the materials which supplement the film. The narrator points out that in the television control room, the director's fingers are on the electronic controls of a new and promising instrument for teaching and learning, but that they are also on the pulse of the classroom, for it is in the classroom that the real measure of this lesson will be taken.

SPECIFIC GUIDELINES FOR USE OF THIS KIT

Bear in mind that this is not a "dramatic" presentation or a "visit to a television studio." Instead, it is an effort to show how all of the elements of preparation for the television lesson are fused into a "whole" with important implications for learning.

Remember that a number of significant steps in the preparation of a television lesson take place before the steps depicted in this film. A suggested outline for the steps to be followed in the development of instructional television lessons is shown in the notes at the end of this section on page D-15.

The emphasis in the film in this kit is upon preparation of the television lesson and the aspects of utilization entailed in this preparation. This does not suggest that utilization begins and ends with the lesson itself. The lesson has been planned to encourage, invite, and suggest classroom activities which prepare for the lesson, extend the lesson, and reinforce the lesson.

This is only one kind of lesson, designed to teach a particular subject, and to lend support in one particular area at one particular level. It is an example of television used as a major resource in science at an upper primary, lower intermediate developmental level. Other lessons, used for other purposes at other levels of development and support, would be planned and designed in different ways.

SUGGESTED PROCEDURES FOR USING THIS KIT

You will probably want to give a short introduction and orientation to the film, show the film, and follow it with a discussion period.

If so, these suggested questions may be helpful to you in sparking the discussion:

1. In selecting and preparing a television lesson or series of lessons for the classroom, what decisions must be made? What criteria govern these decisions? Ideally, who would be involved in making these decisions? Who is responsible for such decision-making in the school system with which you are most familiar? Upon what should these decisions be based if the television lessons are to be most effectively utilized?

2. What are some of the limiting factors which may influence television lesson preparation? (i.e. correlation with adopted textbooks, other curriculum requirements, limits of lesson time, lesson sequence to be scheduled around special days, holidays, standardized tests, etc.)

3. Why is television production called a "team effort?" Who are the members of this team? Why are the television teacher and the classroom teacher frequently designated the "teaching team?"

4. Discuss the place Lesson Guides have in proper utilization of instructional television? What kind of information and material, if included in a Lesson Guide, would be helpful to you as a classroom teacher using television? See the notes at the end of this Section for a sample from the Guide to accompany the television lesson used in this film, page D-17.

5. Why is it desirable to include classroom teachers in the planning and preparation of television lessons? (i.e. improves lesson quality and usefulness; gives the classroom teacher a clearer understanding of what television can and cannot do and an awareness of the problems involved in preparing television lessons.)

6. How do you react to the preparation of the television lesson in this film? Do you think it was wisely planned? If so, in what respects? Had you been planning this lesson, what would you have done differently? Why?

7. What did the television teacher do that the classroom teacher could not do? Is it necessary that the television teacher's presentation be something that the classroom teacher cannot do?

8. What contribution do you feel this lesson makes to a class at this developmental level? A complete outline of the television lesson used is included in the notes at the end of this section on page D-21.

9. Do you consider this television teacher a good teacher? If so, why? If not, why not?

10. What do you feel should be the qualifications of a good television teacher? A list of Qualities Desirable in a Television Teacher is included in the notes at the end of this section on page D-22. Would you like to be a television teacher? Why? Why not?

11. If a television series has been designed and prepared elsewhere, and is being used by your school system, is your evaluation pointless? Why? Why not?

12. Are there needs in your classroom which might be met with instructional television? What are they? What would you like to see a television teacher do in YOUR own field or subject area which would be most helpful to you as a classroom teacher?

It is, of course, not necessary to cover all of these questions at the time of the demonstration, and you (or the members of your group) may have questions of your own you would prefer to ask. However, it is hoped that viewers with unanswered questions may be directed to a satisfactory source of information. (i.e. reports from other members of your group, further discussion, experienced people outside the group, available literature, OR OTHER FILMS IN THIS SERIES.)

ADDITIONAL GROUP ACTIVITIES

1. Ask members of the viewing group to report more fully on certain aspects of television lesson preparation, using available references, personal experiences, and other resources. Some areas that might be reproted on are: curriculum decisions and important aspects of selecting or designing television lessons, development and refinement of ideas, preparing the Teacher's Guide, the most productive avenues to content information, the relationship of the television teacher to the producer-director, the supervisor of graphic or visual materials, etc.

2. Have the members of the viewing group plan and specify the steps in preparing other presentations of a lesson in the area of oceanology for this same developmental level, with emphasis on utilization elements.

3. Ask the members of the group to suggest or demonstrate preparation of television lessons in other areas, suggested by films or Teacher's Guides of other television programs.

4. Show samples or excerpts of other television lessons (which may be obtained from some of the sources listed on page A-11 of this Manual) and ask the members of your viewing group to identify utilization elements in these lessons.

5. Ask individuals or small groups to suggest or demonstrate classroom activities suggested or invited by the utilization elements in the lessons viewed above.

6. Divide your viewing group into two smaller groups. Have one of these indicate areas of need in their own classrooms. Ask the other small group to plan a television lesson or series of lessons which may be of help. This group should specify the curriculum decisions involved, the reasons for planning the lesson in this particular way, and how it is anticipated that the lessons may be used to best advantage. Then ask the members of the group who described the existing need to evaluate these suggestions in relation to their classroom problems, whether the suggested lessons will help to alleviate them, and to plan what they would do to utilize the planning group's lessons.

No doubt you will think of other ways to use these materials. No one way is best in all situations. However, there are certain understandings which the viewers should have, no matter what procedure is used for the over-all experience, if they are to view this film intelligently and in proper perspective.

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Mrs. Elsie Cullers
Mrs. Mallissie E. Hurt

Mrs. Barbara Coleman, Television Teacher

William Arhos, Producer-Director

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Houston Fearless Corporation for Television Studio Equipment

SUPPLEMENTARY MATERIALS

Printed Materials

CREATING VISUALS FOR TELEVISION, James Spear, National Education Association, 1962, (Soft Cover) 48 pp.

DESIGN FOR ETV, Planning for Schools With Television, Prepared by Dave Chapman, Inc., Industrial Design for Educational Facilities Laboratories, New York, 1960.

PREPARING OBJECTIVES FOR PROGRAMMED INSTRUCTION, Robert F. Mager, Fearon Publishers, San Francisco, 1962, (Soft Cover) 62 pp.

PRODUCING YOUR EDUCATIONAL TELEVISION PROGRAM, Edward C. Cavert (Revised Edition. Original Edition written by Angela McDermott and Donald E. Schein, 1955.) Prepared for the Mohawk-Hudson Council on Educational Television, Schenectady, New York. Published under a grant from General Electric, 1961, (Soft Cover) 95 pp.

QUALITIES DESIRABLE IN TELEVISION TEACHER, List of qualities arranged in groups but not in order of importance within each group, see notes at the end of this section of page D-22.

Films

THE STUDIO TEACHER is a forty-seven minute kinescope recording (useable on any 16 mm sound projector) showing and explaining equipment and techniques employed in an instructional television presentation. May be purchased or rented from the Great Plains Television Library.

A SEQUENCE USED IN DEVELOPING INSTRUCTIONAL TELEVISION LESSONS

Classroom Need

Television lessons are effective only when they answer a need which exists in the classroom. That need must be recognized and defined, perhaps by the classroom teacher as the one closest to the classroom situation. It must be articulated either by teachers or administrators. Ideally, then, when curriculum decisions are made concerning the use of television lessons in the classroom, the design of the television lessons will follow the classroom need.

Idea Development

Those concerned with the development of the television lesson should seek out individuals as sources of advice and consultation. They should ask the help of classroom teachers, curriculum supervisors, special interest groups, and specialists in education, subject matter, and television production. From the information furnished by these advisors, the Program Developer can determine the kind of support the television lesson is to offer, the level at which it is to be used, and the nature and extent of the content.

Idea Evaluation

As the content and form of the lessons emerge, a committee of specialists scrutinize the proposed lessons. This committee includes classroom teachers, content authorities, curriculum directors, and television producers. In some instances, these will be the same people who helped with the idea development. However, this is an opportunity to involve additional people and to have a fresh reaction to the ideas. The lessons should be evaluated for their relationship to the need which exists, the contribution they make to learning, their adaptability to television and potential for using the medium to advantage, their appriateness of form, and their place in the curriculum.

Refinement of Idea for Television

Usually, there will emerge from the larger advisory committee a small working group consisting of the producer-director, the on-camera teacher, the writer (if there is to be a separate writer), and one or more consultants who are specialists in content, curriculum, lesson theory, and classroom teaching. This small core of workers will map out the specific television lessons in terms of series and specific lesson objectives, generalizations or main ideas to be covered in each lesson, the relationship among the various lessons, the lesson sequence, and review and test segments.

Teacher's Guide

Ideally, the Teacher's Guide should be written after a television lesson is produced. This is not possible unless the series is being prerecorded far enough in advance to allow for writing, printing, and distribution. Most Teacher's Guides are written before the programs are produced since the majority of programs are broadcast live or recorded just before they are used. Sometimes the television teacher writes the Teacher's Manual alone. It is a better idea, however, if one or two members of the planning group can help.

The Guide can be thought of as a "blueprint" of the series. It includes a statement of the design and goals of the series as a whole, as well as the scope, contour, and objectives of each lesson.

Some Teacher's Guides are brief and simple, others more complex, but their basic function is to enable the television teacher and the classroom teacher to move in the same direction toward the same goals. As a minimum, the Guide will tell the classroom teacher what is covered by each lesson, what unfamiliar words the pupils will need to know in order to get the most from the lesson presentation, and what major points the lesson will emphasize. In addition, the Guide usually will suggest some activities which may be used in the classroom to prepare the students for the lesson to come, activities (if some are essential to the desired behavior) to be used during the lesson, and immediate or long-range activities which, following the lesson, will help to clarify or extend lesson concepts and weave the lesson into the entire coordinated learning sequence.

An excerpt from the Teacher's Guide, pertinent to the lesson in this film, is shown on the following pages. More detailed suggestions for using the Teacher's Guide are given for the benefit of the classroom teacher among the materials in Kit Number 2.

Production of the Series

After the programs have been outlined, the television teacher, one or more subject matter specialists, and the television production staff work together to arrive at the exact form which the lessons will take, to prepare the graphic materials, and to bring about the most desirable meld of content and presentational elements to achieve the lesson objectives.

When the setting of the program has been planned and made ready, when the graphics are completed, and a run-down of the presentation sequence has been made, the television teacher and the television production staff may be involved in several specialized rehearsals. Depending upon the complexity of the lesson, there may be a lighting rehearsal, technical rehearsal, a dry-run (a walk-through of the lesson sequence without cameras, but using graphic materials and props), a sound and/or music rehearsal. Then comes the full start-stop rehearsal, in which all of the elements are mixed together, and a final consideration is given to important aspects of teaching: pacing, clarity, emphasis, impact, and logical development.

At the time scheduled, the lesson will be presented, either "live" (direct from the studio to the classroom) or from video tape or film.

EXCERPTS FROM THE TEACHER'S GUIDE TO ACCOMPANY THE TELEVISION LESSON IN KIT NUMBER 3 *

PREFACE

The Use of Generalizations in the Teaching of Science and How the Generalization System Relates to Science Programs

Memorization of subject matter and mastery of unrelated facts does not seem to be the appropriate way to grasp broad understandings of subjects. This is true in almost all subject areas and especially in the sciences. Science is constantly changing as new phenomena are observed and discovered, but it is characterized by having a few basic generalizations which compose the structure of science, These generalizations do not exist as isolated vertical threads within a single area of science. They are horizontal generalizations which extend across all scientific endeavor.

Science instruction at the elementary school level needs an economy of ideas around which to design the experiences of children. It would seem beneficial then, for you and the television teacher to "team up" to present this organized system of gaining scientific knowledge.

The system of using generalizations to teach broad concepts has implications for you, for the television teacher, and for your students in the following ways:

1. It will provide the basic approach toward the understanding of science that the television teacher will follow in the presentation of the televised lesson.

2. It will provide you with some insight into the basic approach that will be used by the television teacher, and will supply a base upon which classroom activities can be arranged to correlate the telecast with classwork.

3. It will provide the student with the framework into which scientific data may be placed in order to "organize" understanding of the nature of science.

A working knowledge of the following seven generalizations will establish more effective communications between you and the television teacher and will provide the vehicle by which a more complete understanding of the nature of science is possible. Read them carefully.

* Adapted from the KLRN Teacher's Guide.

GENERALIZATIONS

Premise: The search for understanding in science is based on evidence of causation and results in our searching for unifying regularities in nature.

Number 1 For every event there is a cause or causes. Careful observations indicate the presence of these regularities. Hypotheses are models of them. Experimentation helps verify or discredit these models.

Premise: Our universe is made of matter and energy. The substance of the universe is matter. The motion of the matter is an expression of the energy as force, whereas, the balance of this energy results in no expression of force.

Number 2 Matter has weight, takes up space, and is composed of atoms and the smaller atomic particles. The substance of the universe is matter.

Number 3 Energy. Equilibrium exists when energy components are equal or balanced. Force exists when energy components are not equal.

Premise: Few things exist in isolation. One regularity in main is the constant interaction of living and non-living things.

Number 4 Interaction of things represents interdependence.

Number 5 The structure of living things. From our observations we see that matter of living things is organized in systems: environments, organisms, organs, tissues, cells, and molecules.

Number 6 The energy of living things is observable in the interaction within and without the living organisms. Internally, it is the building up and breaking down of the parts of the structure. Externally, it is the securing of food and other measures taken to survive. Collectively, expression of energy is observable in growth and motion of the living organisms.

Number 7 The control of living organisms determines the limits of the matter and energy interactions, including some interactions such as continuity, variety, adaptation, etc.

* *

INVESTIGATION NUMBER 12 (Lesson Proceeding Film Example)

Purpose: The television teacher will show the topographical formations of our earth's surface. Relates to Generalization 1.

Vocabulary: topography, mountains, lowlands, plains, plateau

Related Activities:

1. With a sand table, build as many topographical features as you can. (These should be more refined than in Investigation Number 8.) Correlate the features by connecting them to a wall map.

2. Using a topographical map, identify and explain map symbols, color codes, and marginal data.

3. Relate topographical features to stratification of rock and erosion.

4. Has man affected any of the topographical formations?

5. As an introduction to the next Investigation, note and discuss briefly the idea of depth of water in the ocean as indicated by various shadings on the map.

INVESTIGATION NUMBER 13 (Lesson Used on Film)

Purpose: The television teacher will show what is under the surface of the ocean and how man can survive in this strange, non-human environment. Relates to Generalization 4.

Vocabulary: Continental Shelf, continent, ocean bed or floor, human environment, adapting, adaptation, food chain

Related Activities:

1. Relate dry land topography to marine topography.

2. Make a chart correlating the plant and animal life cycle (fish which eat plants, big fish eating little fish, etc.) found under the surface of the ocean.

3. Make a seashell collection and discuss the type of life that once inhabited the shells.

4. List some of the things from the ocean that we eat. Discuss what the scientists are learning about the ocean as a future food supply.

5. Additional related concepts to be investigated: Continental Shelf, islands, ocean floor, pressure, depth.

INVESTIGATION NUMBER 14 (Lesson Following Film Example)

Purpose: The television teacher will introduce the atmosphere in relation to clouds and the water cycle. Relates to Generalization 4.

* *

SYNOPSIS OF COMPLETE TELEVISION LESSON

USED IN KIT NUMBER 3

The lesson opens with a view of the buildings in the "underwater village," shown by models built to simulate the specialized structures which scientists are designing for living and exploring under the surface of the ocean. The television teacher reminds the pupils that man is meant to live on dry land, on the surface of the earth, in the atmosphere, where all the requirements for human life are found. Although all of these things are found in the sea, says the teacher, they are not in forms which man is ready to use. Therefore, when man's curiosity takes him into the ocean, he must bring his own natural human environments with him.

The teacher points out the various buildings and tells the particular use for which each was planned. She then talks about "Starfish House," man's main home and laboratory under the sea, and asks the children to join her in seeing how explorers live in this laboratory under the water.

We next see the television teacher as she appears to emerge through the open hatch into the air chamber of Starfish House. "This is the way we come in," says the teacher, "right up out of the water. But the water can't come in with us, although there is no floor or door to keep it out. Can you guess why?" She tells the pupils that she will explore this question with them during their visit.

The television teacher shows the pupils a starfish skeleton and a photograph of a starfish eating a scallop, explaining how the starfish does this. The starfish, she points out, is equipped to eat and breathe underwater, but man is not. She discusses how man uses his human brain, remembering the things he knows, observing the things he sees around him, using these things in solving the new problems which he meets under the sea.

The teacher then uses an aquarium in the laboratory to demonstrate the levels of the ocean, including the Continental Shelf on which the underwater village stands. She discusses the sea creatures which live in the various levels and some of the unusual ways in which they adapt to their special environment, ways which may give man ideas for solving his own problems under the sea. In discussing what man already knows that will help him solve some of these problems, the teacher demonstrates how air pressure keeps the water from entering the Starfish House.

The teacher points out that although there are differences in living on dry land and living under the sea, there are likenesses, too, which can be very helpful to the explorers. She describes the food chain in the ocean, calling the attention of the pupils to its similarity to the food chain on dry land.

QUALITIES DESIRABLE IN A TELEVISION TEACHER

Generalizations about the ideal television teacher are difficult to make and may be meaningless, as a teacher who responds very well to one situation may not do at all well in another.

A teacher who is highly adept under normal circumstances may be unable to function satisfactorily when things go awry in the studio or when swift and unexpected changes must be made.

Some television teachers make a very good first impression but are unable to adjust to the special pressures and demands made by regular television lesson preparation and presentation. Others, not too impressive when first introduced to the medium, grow and improve, bringing increasing vitality and impact to their work as they become more proficient in the specialized techniques of television teaching and more aware of its unusual capacities.

This potential for growth and improvement is of the utmost significance, for initial selection is only one step in the development of an effective teacher. Presentational aptitude is important but is not the only consideration. Knowledge of the subject field varies in importance as we find variations in the extent of the television teacher's responsibility for lesson content. Where the teacher has considerable responsibility for such content, then competence in the subject area and in organization of material is essential.

In the long run we make wiser choices if we realize there is no such thing as a sterotype for a superior television teacher, if we look beyond the attractive, graceful, easy presence on the screen to see what is happening in the classroom. How do the children react to this teacher? How does this teacher communicate? Some teachers may be excellent at presentation but cannot motivate children to learn. Some can stir up interest and enthusiasm in the children, but lack organizational skills. A teacher, therefore, may be effective if called upon for one function, ineffectual if called upon for another. This possibility has moved some people to ask if there should be more than one television teacher for some lesson series.

A good television teacher is enabled to be a better one where there is "feedback" from the classrooms into which the lessons are going, if there is opportunity for evaluation in the classroom, for suggestions from the classroom teachers, for consultation and cooperation among the members of the teaching team. It is under these conditions that the television teacher's potential for growth and improvement has its greatest opportunity to reach full fruition.

All other things being equal, the following may suggest some of the qualities to be looked for in a television teacher:

Personality Characteristics

Warm, pleasing personality
Dignified, relaxed manner
Creative and imaginative mind
Cooperative, work well with others
Sense of humor
Ability to take criticism
Pleasant speaking voice and manner
Absence of annoying personal mannerisms

Educational Background

Competence in subject matter area
Confidence in presentation of subject matter
Experience in classroom teaching

Communication Ability

Confidence in medium of television
Ability to think and plan visually
Ability to plan and organize well
Speaks well in planned and impromptu situations
Ability to stimulate and communicate enthusiasm
Pleasing appearance

KIT NUMBER 4

PROMISING PRACTICES

At the time this manual was printed, the material for Kit Number 4 had not been released. A supplement will be issued when the Kit is ready.

PROMISING PRACTICES

Purpose

The film in this kit is designed to demonstrate that many of the concerns which first come to mind when considering the use of instructional television are not insurmountable. Recognizing that problems do exist in integrating television into the existing school structure and curriculum organization, the film suggests that certain approaches and practices inaugurated successfully by other good educators may hold promise for schools now faced by obstacles which cut them off from valuable instructional resources.

Film Synopsis

The film defines some of the problems and concerns which are interposing themselves between some school systems and the use of instructional television and illustrates briefly some of the "promising practices" which have been used successfully or which are being tried experimentally in an effort to by-pass these roadblocks on the way to improved instruction.

Attention is given to problems arising from considerations of time, of role identification, of curriculum, of costs, and of individual needs. Although many of these concerns are complicated, the film seeks only to highlight the problems and to give brief glimpses into the nature of the solution. Its purpose is to encourage those who have such problems to explore the possibilities further.

Kit Number 5

A CASE STUDY IN THE ELEMENTARY SCHOOL

A kit of materials showing how one sixth-grade teacher used a television lesson on oceanology to teach some basic science generalizations, to arouse class interest in how and why man learns new things, to capitlize upon individual strengths and to meet special needs among her own pupils.

A CASE STUDY IN THE ELEMENTARY SCHOOL

Good elementary classroom teachers should USE television lessons, not just follow them. We cannot count on automatic learning just because the child is face-to-face with an instrument of learning or just because he has witnessed a commendable presentation. Television, like any other instrument, can bring the lesson and the child together. The classroom teacher must apply the "glue" which makes the lesson stick!

It is not enough for the classroom teacher to be an echo or a caboose simply parrating or re-teaching the lesson content. As "manager of the learning situation," the classroom teacher has the primary responsibility for clarifying, extending, and reinforcing the concepts involved.

The television lesson can be geared to any of the many methods which teachers use; so can the preparation for the television lesson and the follow-through.

How each teacher in the classroom makes his or her "glue" depends upon what is to be accomplished, what objectives the teacher has in mind, and what kind of learning is sought (skills, knowledge, attitudes, values, understandings, and/or appreciations). It depends upon the purpose of the television series as a whole, the purpose of this specific lesson and this teacher's own purposes in using the lesson.

It depends, also, in important measure, upon this particular teacher's personal "glue" recipe . . . compounded of the teacher's special touch and personality, the teacher's own skills and strengths,

the available resources, the procedures which have proved effective in personal experience, the activities suited to the abilities, interests, and needs of a particular class or even to particular pupils within the class.

Film Synopsis

The film is documentary in form, with a narrator to set the scenes, to make particular points, and to provide transitions between sequences.

The viewer sees a portion of the television lesson, then is taken by flash-back to the classroom a few days before the lesson, to see how the teacher prepares her class for the presentation to come. The viewer rejoins the class for the concluding sequences of the television lesson, observes the class activities immediately following the lesson, and then is moved ahead in time to see how the impact of the lesson is extended and reinforced through long-range utilization activities. A complete outline of the Utilization Procedures Used by the Classroom Teacher in this film is shown in the notes at the end of this section on page F-18.

This particular lesson was chosen in consultation with fifteen elementary teachers in three different schools. All use television effectively in their own classrooms. They chose science since they feel that it is in science that instructional television makes one of its most significant contributions to the elementary curriculum.

Oceanology, the technology by which man seeks to avail himself of the ocean's resources, was chosen as a relatively sophisticated

aspect of ocean study, and ocean study was recommended as a contemporary area of science with high fascination for youngsters, as well as an area which has developed too recently and rapidly to be covered adequately in the textbooks. This quality of immediacy represents one of the most valuable contributions that can be made by television.

Utilization procedures reflected in this film were developed in consultation with a sixth-grade elementary classroom teacher who was for a number of years a demonstration teacher in the teaching of elementary science. In addition to her extensive classroom experience, this teacher has had first-hand experience as a television teacher. Class reactions to the music and paintings in the preparation sequence were based on actual, recorded class reactions.

The classroom teacher used as a model for the teacher in this film is an inspiring teacher, with faith in her pupils' ability to "think big, see far, feel vividly, and probe deeply." The pupils breathing her classroom atmosphere feel free to express their reactions in their own personalized terms, to think aloud, to tackle big problems, without fear of failure or ridicule. Their vocabulary expands as their probing constantly deepens.

The school from which we took specifications for our classroom in the film, was built about fifteen years ago as a model of the most contemporary school planning for that time. This school and its representative classroom were chosen for the film because in physical accom-

odations they offer a median model between the older, more rigid traditional buildings and the newest of highly-flexible designs which have at present few counterparts among our schools. Classroom materials (for display and learning) were made by pupils and teachers of this school.

SPECIFIC GUIDELINES FOR USE OF THIS KIT

The question and answer sequences shown in the film have been shortened in order to fit into the film time allotted for them. The viewer must realize that these scenes are merely indicative of approaches which would be followed. In order to illustrate the aspects of utilization which deal with individual differences, it has been necessary to establish in a few very brief sequences the abilities and personalities of specific children. Mrs. Arnold, the classroom teacher on the film, demonstrates her concern for the special needs, interests and abilities among her pupils with a representative group for all of the individual children in the classroom. Given unlimited film time, the interaction between Mrs. Arnold and all of the pupils would have been shown.

The same limitations of time dictated a choice between showing the entire television lesson and concentrating on the activities used by Mrs. Arnold to integrate that lesson into the total learning experience in her classroom. Bear in mind, that you are not seeing the entire television lesson on the film and that some of the elements which contribute to the lesson's validity and effectiveness are incorporated in the portion not seen.

A set of notes is included on page F-20 of this section. These should be duplicated and distributed to the viewers at the end of the meeting.

SUGGESTED PROCEDURES FOR USING THIS KIT

You will probably want to give a short introduction and orientation to the film, show the film, and follow it with a discussion period.

If so, these suggested questions may be helpful to you in sparking the discussion:

1. Will you name (in a general way) some preparation activities for a television lesson? (i.e. review of preceding material, survey of the content outline for the year, unit, or series; vocabulary work; studying the material in the text; listing questions for which pupils need answers; discussion; library reading; practice in viewing skills; defining viewing objectives; etc.)

2. What are some follow-through activities? (i.e. answering questions; framing thought questions; defining and discussing the main ideas in the lesson; drill; experimentation; problem solving; discussing reactions to the lesson; testing; writing special material; preparing related art work; etc.)

3. Do activities for preparation and activities for follow-through differ in KIND? Can the same activities be used for either purpose? Where does the basic distinction lie? Can you suggest activities which would be appropriate for one purpose but not for the other?

4. What would you have done with the lesson shown in this film? How do you react to what the classroom teacher did on the film?

5. What do these procedures suggest to you about Mrs. Arnold as a teacher? What do they suggest to you about her class as a whole?

6. How could you utilize this television lesson in subject areas other then science? Can you name specific introductory and follow-through activities for this television lesson in your own subject field?

7. Do your pupils live on the ocean or inland? What differences would this suggest in the activities?

8. Can you see what Mrs. Arnold was trying to do and how she has done it? Why, for instance, did she use music and painting to prepare her pupils for a SCIENCE program? Why did she consider it important for them to explore man's reasons for learning new things?

9. Do you think this television lesson requires, suggests, or invites any specific activities in preparation or follow-through? Do you think an inexperienced teacher could use this lesson effectively?

10. Is it normal to spend the amount of class and pupil time utilizing one lesson? How could Mrs. Arnold justify using so much time?

11. Have any of you experienced instructional television as students? How do you feel about its contributions to your own learning? What in particular stands out in your memory about it?

It is, of course, not necessary to cover all of these questions at the time of the demonstration, and you (or the members of your group) may have questions of your own you would prefer to ask. However, it is hoped that viewers with unanswered questions may be directed to a satisfactory source of information. (i.e. reports from other members of your group, further discussion, experienced people outside the group, available literature, OR OTHER FILMS IN THIS SERIES.)

ADDITIONAL GROUP ACTIVITIES

1. Have the class or group viewing the film make alternative suggestions for class activities (preparation, immediate follow-through, long-range follow-through) utilizing THE SAME LESSON.

2. Ask part of the members of the group or class to develop lesson excerpts with specified goals for which other members of the group may develop and demonstrate the various kinds of utilization procedures.

3. Ask the members of the group or class to evaluate the film and the procedures demonstrated in the film. Do they approve of what Mrs. Arnold did? Why? Why not? Assuming the same general procedures is there anything they would have done differently? What is their evaluation of the television lesson?

4. Ask members of the class to participate in a role-playing situation in which the television teacher has come to visit Mrs. Arnold's class. Do the participants seem to know why the television teacher has come? Does the conversation between the television teacher and Mrs. Arnold show a firm grasp of this important evaluative procedure?

5. Discuss with the group or class the importance of evaluation to effective utilization. What is its function in the utilization process? How should the television teacher and Mrs. Arnold relate to each other?

How can this help both teachers? In what spirit should both teachers approach the critical function essential to effective "team" or "partnership" teaching?

6. Members of the group may want to explore questions of their own such as:

a. What can I, as a teacher, do to encourage favorable reactions to television among my students? Is my own attitude important in this matter? In what ways?

b. What should I, as a teacher, be doing while the television lesson is in progress?

c. What have I learned in using films in the classroom that can be carried over to the use of television lessons?

d. How does film differ from television as an instructional resource?

e. How is my role as a classroom teacher affected by the use of television lessons?

f. Should I summarize what the television teacher presented?

g. Should every teacher use the same follow-through?

h. Should I try to do everything the Teacher's Guide suggests? Would there ever be a time when I would not do anything suggested in the Teacher's Guide?

No doubt you will think of other ways to use these materials. No one way is best in all situations. However, there are certain understandings which the viewers should have, no matter what procedure is used for the over-all experience, if they are to view this film intelligently and in proper perspective.

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American Seating Company for furniture used in classroom sequences.

SUPPLEMENTARY MATERIALS

Printed Material

AND TV, TOO, Department of Classroom Teachers, Department of Audio Visual Education, National Education Association, Washington, D. C., 1961, 63 pp.

IMPROVEMENT OF TEACHING BY TELEVISION, Proceedings of the National Conference of the National Association of Educational Broadcasters at the University of Missouri, March 2-4, 1964, Edited by Barton L. Griffith and Donald W. MacLean, University of Missouri Press, Columbia, Missouri, 1964, 238 pp.

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EXCERPTS FROM THE TEACHER'S GUIDE TO ACCOMPANY THE TELEVISION LESSON IN KIT NUMBER 5 *

MINERALOGY (Lesson Proceeding Film Example)

Purpose: To survey the elements which make up the earth; to introduce the minerals found in the ocean. Relates to Generalization 2.

* *

OCEANOLOGY (Lesson Used on Film)

Purpose: To investigate how and why man employs his inventive brain to adapt to the "world of water" and to use all the resources of the oceans.

Vocabulary:

oceanography	equilibrium
oceanology	technology
environment (human, non-human)	resources
adaptation	distillation
	depletion

Discussion or Project Questions:

1. What problems does man have on the earth with reference to:

food	natural disaster
water	military disaster
climate	air pollution

Which of these problems has he created with his own efforts to change his environment? Why has he wanted to change his environment?

Which of these problems may the ocean help him solve?

What problems must he solve before he can use the ocean's resources?

2. Using the information given in the table below, discuss the following questions: Why is sea water so salty? Why is river water less salty? How do the chemicals get into the water?

Element	Sea Water %	River Water %	Rocks %
Chlorine	55	6	Trace
Sodium	30	3	4
Magnesium	3	3	3
Potassium	2	1	3
Calcium	1	20	5
Iron and Aluminum	Trace	3	23
Silicon	Trace	11	59

3. What is magnesium? List its uses.

4. Using a reference book, draw a model of a distillation plant. What are these plants designed to do? Where are some of them located?

5. Using a reference book, construct a model of an off-shore oil drilling rig. What are some of the problems which drillers for oil have had to solve when drilling under the ocean? How have some of these problems been solved? What are some of the uses of this oil?

6. Why do we talk about "mining" the ocean? "Farming" the ocean? "Ranching" in the ocean? Make a chart showing some of the riches the miner may find in the ocean, some of the products the farmer may raise or produce, some of the developments which may take place in ocean "ranching."

7. Compare the land and the ocean as sources of food?

8. What are some of the disadvantages of life under the sea? What are some of the advantages?

9. Report to the class on whales and why they are important in man's exploration of and adaptation to this new environment?

10. Collect news stories and features from newspapers, news magazines, and other publications, concerning recent developments in the technology of the ocean.

11. Discuss the statement that in his exploration of the ocean "man is only a primitive hunter." It has been said that man's knowledge of the ocean waters at this time is about equal to our knowledge of this continent at the time of the Lewis and Clark Expedition. What was the extent of that knowledge? Show this on an illustrated map.

12. Discuss whether there are more "practical promises" for man in space or man in the ocean.

13. Design a demonstration to illustrate how the pastures of the sea are fertilized.

14. Other than the examples given in the television lesson, what are some of the things man knows which help him in exploring under the sea? (About pressure? About refraction?)

15. Develop and illustrate a "time chart" showing important events in exploring under the ocean, when they took place, who was responsible.

16. Draw or cut out pictures of objects around your house or neighborhood which might be helpful in giving man inventive ideas about ocean exploration. Suggest how these or adaptations of these objects might be used.

References:

Live Nature Library: THE SEA, by Leonard Engel and the editors of Life. Time Incorporated, New York.

THE CHALLENGE OF THE SEA, by Arthur C. Clarke, Holt, Rinehart and Winston, New York.

REVIEW OF EARTH SCIENCE (Lesson Following Film Example)

Purpose: To consider man and his adaptation to the environment as seen through the eyes of the archeologist, anthropologist, and paleontologist. Relates to Generalizations 3 and 4.

* *

NOTES
Kit Number 5

UTILIZATION PROCEDURES USED BY CLASSROOM TEACHER IN KIT NUMBER 5

(Mrs. Arnold in "A Case Study in the Elementary School")

PREPARATION FOR THE LESSON

Three days before the lesson

Picture study, music, and discussion to introduce a new science topic, to stimulate interest, to arouse emotion, and to probe for the extent of knowledge and interest already present...to lead the pupils into a consideration of how man learns new things and adds to his existing fund of knowledge...to define the major problems in question form.

Self-directed reading (school library and home): to increase knowledge and encourage further thinking.

Listing of questions by pupils: to organize their own knowledge...to discover what they know and what they need to find out...to provide a frame of reference for watching the television lesson.

Two days before the lesson

Self-directed reading continued.
Listing of questions continued.

Vocabulary drill (on words the pupils need to know, as revealed from their reading and discussion, and as suggested in the Teacher's Guide).

One day before the lesson

Preparation for viewing: Exploring of anticipated lesson content...the "what" of the lesson. Further discussion of man's motivations toward and away from exploration of the unknown, discovery, and learning.

The day of the lesson

Review of two big questions for which the class wants to find answers.

Formulation of hypothesis concerning nature of answers.

THE LESSON

(Utilization procedures during the lesson are considered somewhat extensively in "Role of the Classroom Teacher." This film concerns itself, therefore, with "preparation" and "follow-through" activities.)

AFTER THE LESSON

Immediate and short-range activities

Revisiting the lesson.

Main ideas, isolated and listed on chalkboard.

Class reactions described: how the lesson made us feel.

Class specifies new discoveries: surprises we found in the lesson.

Members of class check their lists of questions against the lesson content to see which questions answered by presentation on screen and which ones need further exploration.

Review of two big questions.

Review of class-formulated hypothesis concerning ocean exploration.

Long-range group and individual activities

Group: exhibit and group report, "What Tipped the Scales Toward Knowing?"

Individuals:

Bryan - construction of graphic materials for group exhibit and report (good with his hands)

Alice - verbal report based on critical thinking (realistic, doubting, inclined to argue and question)

Scott - poster and notebook reflecting the complex of sciences represented in the ocean (factual recall, interested in information.)

David - cliche mobile (imaginative, fond of words.)

Laura - Career Day in the ocean (creative, fond of the dramatic, eager to emulate older brother.)

NOTES FOR THE VIEWER

UTILIZING INSTRUCTIONAL TELEVISION

TELEVISION

is: a relatively new instrument for communicating ideas,

a versatile and valuable addition to the many ways we have to help children learn,

a tool of instruction which is at its best when it is properly used.

is not: "instant learning,"

the "be-all end-all" of classroom resources,

infinitely superior to other methods of instruction,

problem-free.

THE CLASSROOM TEACHER

is: vitally important to the effective utilization of instructional television,

important in the selection of appropriate television lessons and other materials, as the school's representative closest to the needs and problems of the classroom,

in control of the learning situation, as organizer of the classroom and director of its important activities,

responsible for integrating the resource, television, into the whole carefully-coordinated school program, for using it wisely and appropriately in conjunction with other resources.

is not: a caboose or an echo,

a passive follower of television lessons but a dynamic USER!

Television can bring the child and the lesson together, but it is the classroom teacher who must apply THE GLUE TO MAKE THE LESSON STICK!

From seeing how one sixth-grade teacher might use a television lesson on oceanology to teach some basic science generalizations, to introduce broader areas of understanding, to call upon personal strengths, and to meet individual needs among her own pupils, you may want to remember . . .

. . . that proper utilization of television lessons involves more than turning on the television set

. . . that the classroom teacher must know the general purpose of the series (at what level of support it is to be used), as well as the goal or purpose of the specific lesson, as it has been developed by the television teacher

. . . that the classroom teacher (in preparation for the lesson, during the lesson, and in weaving the lesson into the on-going experiences of the pupils) must select those activities which will be most meaningful for her particular class at this particular time

. . . that activities which are appropriate for developing skills are not necessarily those most appropriate for developing attitudes or reinforcing knowledge or establishing values. The activity is not good or bad in itself, but as it relates to the goal to be achieved

. . . that the television teacher and classroom teacher are a team in the learning situation, with the television teacher's major responsibility centered on the content and the classroom teacher's major responsibility focused on individual needs and interests of the learners

. . . that the television teacher's primary concern must be on the elements common to all learners, while the classroom teacher's primary concern must be on the individual needs and interests of the learners

. . . that in assuming a large part of the pressures of research, of collecting and preparing background material, making and collecting visuals, discovering and obtaining resources, the television teacher enables the classroom teacher to devote more time, attention, and energy to the important classroom tasks of guiding, directing, counseling, inspiring, encouraging progress, and removing stumbling blocks from the paths of the pupils, as they move toward self-education

. . . that the classroom teacher is the creator of the climate of the classroom, and therefore, instrumental in shaping the students' attitude toward television and the television teacher

. . . that the students must be aware of the relationship of the television segment to the total learning situation and of what they are expected to get from this lesson and how they are supposed to act as a result of having experienced it.

KIT NUMBER 6

EXAMPLES IN THE SECONDARY SCHOOL

At the time this manual was printed, the material for Kit Number 1 had not been released. A supplement will be issued when the Kit is ready.

EXAMPLES IN THE SECONDARY SCHOOL

Purpose

The film in this kit is designed to reflect some of the ways in which good teachers in secondary schools may help their students use instructional television as a resource for self-education. The film demonstrates many of the same general principles of utilization illustrated in the films: "A Case Study in the Elementary School" and "Role of the Classroom Teacher." However, its special purpose is to consider the aspects of utilization involved in the regimented time schedule and the specialized subject areas of the secondary school, when the same classroom teacher is not with the students for the major part of the school day, and to emphasize utilization procedures most appropriate to the students' increasing capacity for self-directed learning.

Film Synopsis

The viewer is given brief examples of classroom preparation for television lessons in several subject areas at various grade levels, and brief samples of "follow-through" activities related to other lessons in other subject areas at various levels of instruction. Major emphasis in this film is upon the full spectrum of learning experiences into which an imaginative teacher might guide the members of a high school English class, using as a springboard a provacative television lesson on the far-reaching implications of investigation.

Appendix A

THREE PRINCIPAL DEGREES

OF

INSTRUCTIONAL TELEVISION USE

APPENDIX A

THREE PRINCIPAL DEGREES OF INSTRUCTIONAL TELEVISION USE

In general, there are three degrees or levels of support at which instructional television operates. When decisions are made regarding the use of television in your classroom or school system, it is well to bear in mind that television can work in these different ways, and that a very important aspect of the decision-making function is to determine which level of support is most appropriate to your own situation. Crucial to the success of instructional television is a clear understanding as to just what use is envisioned for it and what role it is expected and designed to play in a particular school situation. While this use is listed below as three distinct levels, in practice there are many degrees of classroom support stretching from Level 1 to Level 3.

Level 1 The classroom teacher is responsible for the major course or study unit content, but uses television for the special materials which are difficult or impossible for individual teachers to provide.

Here television is a plus factor rather than an integral part of the main stream of the course. Though the television programs may follow the course direction in a general way, their primary purpose is to supplement and enrich, to provide the kind of fruitful experiences which are stimulating and evocative but practically inaccessible to the regular classroom. Used at this level, television's primary aim is to extend the dimensions of the classroom toward increased experience, enhanced appreciation, or heightened interest.

Level 2 The television teacher presents the major content of a course or study unit, but the classroom teacher is in full control of the learning situation in the classroom and is director of the important classroom activities designed to reinforce, clarify, and extend the television material to bring about maximum learning.

Where television offers this level of support, the television teacher and the classroom teacher work as a team toward specific goals which both understand and approve. Each teacher's specialties complement those of the other teacher.

In general, the television teacher is responsible for the common elements of information and interpretation and for opening doors to further exploration. The classroom teacher prepares the students for the television presentation and weaves it into the fabric of the total learning situation. As the specialist in the needs and interests of particular groups and individuals, the classroom teacher sees that learning is facilitated by other experiences, such as discussion, laboratory experiments, small group activities, practice and drill, creative expression, problem solving, and individual study.

Level 3 Almost the entire basic body of course or lesson content is provided by the television teacher.

In some instances, high school and college students have met requirements in some subjects by studying television courses without the aid of any classroom teacher.

When teachers with special training in such subjects as foreign language, advanced mathematics, science, etc., are not available, instructional television offers the schools a chance to include these areas in their curriculums. The classroom teacher assists the television teacher in the presentation of the material, and in turn, learns the subject along with the students. Many of the teachers are able to undertake classroom activities based on what they have learned during the telecast and from the suggestions in the Teacher's Guide.

Special Uses of Television Television, particularly closed-circuit uses of television, is sometimes used for purely observational purposes to provide a better view...sometimes a superhuman view... of important objects or processes.

Television's ability to offer a close, a precisely-focused view free from visual distraction is particularly invaluable in many areas of professional training. A microscope slide or a crucial step in a science experiment may be seen simultaneously by all the students in a large lecture hall-demonstration room.

Student observation of physiological counseling or therapy, or of child behavior and demonstration teaching may be greatly facilitated with closed-circuit television equipment.

BIBLIOGRAPHY

AND TV, TOO, Department of Classroom Teachers, Department of Audio Visual Education, National Education Association, Washington, D. C., 1961, 63 pp.

Based on the conference working papers of eight educators, examined and revised by 22 classroom teachers and television personnel, this has much basic information about instructional television, presented clearly and directly. One of the best of the beginning references for the classroom teacher new to television.

DESIGN FOR ETV, Planning for Schools with Television, Prepared by Dave Chapman, Inc., Industrial Design for Educational Facilities Laboratories, New York, 1960.

A superbly illustrated report showing how to plan new schools or adapt existing schools for teaching by television. Excellent material on room arrangement for television. It presents the conclusions of a study conducted by industrial designers in conjunction with educators, psychologists, architects, engineers, etc. While the equipment section needs up-dating, it is highly recommended. Free on request. (Diamond)

EDUCATIONAL TELEVISION: The Next Ten Years, Wilbur Schramm, (Ed.), Stanford: The Institute for Communications Research, 1962, 375 pp.

A report and summary of major studies on the problems and potential of educational television, under the auspices of the United States Office of Education, contains major questions, issues and guidelines based on discussions with national leaders in the field of educational television. A most comprehensive, thoughtful, and scholarly approach to the major aspects of television's present and future in education.

EQUIPMENT GUIDE FOR CLASSROOM TELEVISION, Sylvania

Second publication, more detailed information about equipment concentrating on the "hardware" of educational television and typical ETV systems, with some reference to installation, maintenance, and personnel considerations. Attractively and clearly presented, but commercial in orientation.

A GUIDE TO INSTRUCTIONAL TELEVISION, Robert M. Diamond (Ed.), McGraw-Hill Book Company, 330 West 42nd Street, New York, New York, 10036, 1964, 304 pp.

Designed to offer a single reference for administrators, teachers, students, and laymen interested in exploring the possible applications of television within a particular school or school system, this book offers a variety of perspectives in experience among the writers of the different chapters. Part I is concerned with the practical use of television as a magnification device in a single classroom. Part II surveys a number of informative project experiences in open and closed-circuit instruction, as well as in solution of guidance problems, and in a wide variety of secondary subject areas, highlighting scheduling. Part III offers examples of administrative uses. Part IV considers instructional television in its proper perspective...with a look at potential and problems. A careful, complete, and enlightening reference.

IMPROVEMENT OF TEACHING BY TELEVISION, Proceedings of the National Conference of the National Association of Educational Broadcasters at the University of Missouri, March 2-4, 1964, Edited by Barton L. Griffith and Donald W. MacLean, University of Missouri Press, Columbia, Missouri, 1964, 238 pp.

Frank assessments of the status of instructional television, made by administrators, television specialists, and teachers at every level of education. The topics range from the mechanics of presenting course material to relationships between faculty members and between institutions -- all discussed within the perspective of improved instruction. Animating and integrating the separate papers is the strong belief that instructional television offers an effective solution to many of the problems that educators must confront and a concern that the medium be utilized to its fullest potential.

INSTRUCTIONAL BROADCASTING, Betty McKensie (Ed.), National Association of Educational Broadcasters, 1346 Connecticut Avenue, N.W., Washington, D. C., 20036.

Proceedings of the National Association of Educational Broadcasters Conference, University of Illinois, May 13-15, 1963.

INTERACTION IN LEARNING: IMPLICATIONS FOR TELEVISION, Finette P. Foshay (Ed.), National Education Association, Division of Audio Visual Instruction, 1201 16th Street, N.W., Washington, D.C. 20036, 1959.

> This pamphlet, prepared by a group of distinguished educators for the NEA, examines in detail the components of interaction and the need for it. Especially worthwhile is the second half, which discusses in detail techniques for achieving interaction when using television. (Diamond)

MONOGRAPH NO. 1 OF THE TECHNOLOGICAL DEVELOPMENT PROJECT OF THE NEA, Donald P. Ely (Ed.), Created under contract with U.S. Office of Education, Department of Health, Education, and Welfare, (Special Supplement of AV Communications Review.)

> Definition and terminology in the rapidly-growing field of instructional technology. Considers "The Changing Role of the Audio Visual Process in Education" to arrive at a definition of the field and a glossary of related terms designed to unify those working in instructional technology by clarifying their image of themselves and their communications among themselves.

NEW MEDIA IN HIGHER EDUCATION, James W. Brown and James W. Thorton, Jr. (Ed.), San Jose State College, California, Published by the Association for Higher Education and the Division of Audio Visual Instructional Service of the National Education Association, 1201 16th Street, N. W., Washington, D. C. 20036.

PREPARING OBJECTIVES FOR PROGRAMMED INSTRUCTION, Robert R. Mager, Ph.D., Senior Scientist, Behavioral Science Project, Central Research Laboratory, Varian Associates, Palo Alto, California, Fearon Publishers, 828 Valencia Street, San Francisco, California, 1961.

> A book for teachers and student teachers...for anyone interested in transmitting skills and knowledge to others...a book about preparing instructional objectives...a basic step to successful learning.

PRODUCING YOUR EDUCATIONAL TELEVISION PROGRAM, Prepared by C. Edward Cavert for the Mohawk-Hudson Council on Educational Television, Schenectady, New York, Published under a grant from General Electric, (Revised Edition, 1961. Original Edition written by Angela McDermott and Donald E. Schein, 1955.)

SPECIAL ETV REPORT, American School Board Journal, February, 1964.

Contains an overview by The Federal Communications Commission on Educational Television, 1964, a survey of "ETV Around the U. S. A." by states, articles reflecting experience in several locales, and "ETV Products and Literature."

TEACHING WITH TELEVISION--GUIDELINE FOR THE CLASSROOM TEACHER, Anaheim City School District, Anaheim, California, 1963.

A guide for teachers emphasizing the importance of the classroom teacher for effective television utilization. Defines role of and presents suggestions for teacher-directed activities. Defines role of the Anaheim Television Project within specific subject areas. (Diamond)

TEACH WITH TELEVISION: A Guide to Instructional Television, Lawrence F. Costello and George N. Gordon, Hastings House, New York, 1961.

An excellent resource, comprehensive, factual, realistic, easy to read. This book discusses the nature of instructional television, what it is, how it works; the limits of television; the organization and equipment of the television studio; procedures and practical comments with reference to preparation and use of the instructional television lesson; the relationship of administration and instructional television.

TELEVISION IN EDUCATION, Prepared by the Home and Commercial Electronics Division of Sylvania Electric Products, Inc., New York, 27 pp.

An attractively-presented, well-illustrated booklet, commercially-oriented, which may be of help in understanding some of technical aspects of television in the schools. Contains capsule presentation of "Common Questions about Television in Education" for quick and ready reference.

USING TELEVISION IN THE CLASSROOM, Mary Howard Smith (Ed.), McGraw-Hill Book Company, 330 West 42nd Street, New York, New York, 10036, 1961, 118 pp.

Prepared as an introduction to instructional television for the teachers in the Midwest Program on Airborne Television Instruction, this book offers much valuable and practical information for all teachers who want to know about teaching with television. Contains a brief history of instructional television, a discussion of the teaching partnership, a list of sources and resources, chapters on the role of the classroom teacher, and demonstrations of instructional television in use.

WASHINGTON COUNTY CLOSED CIRCUIT TELEVISION REPORT, William M. Brish, Hagerstown, Maryland, 79 pp.

A report by the Superintendent of Schools on the results of a five-year study (1956-61) during which the school system worked with television in all major subject areas at all grade levels in successive years. A realistic summation of what was done and why in exploring how television should be used for direct instruction and what it could contribute to improvement of instruction. Conclusions are favorable regarding television as an important educational resource continuing to be used as a regular part of the school program, with savings resulting from redeployment of personnel, equipment, and facilities financing the continued use.

UTILIZING INSTRUCTIONAL TELEVISION

SUPPLEMENT ONE

TEACHER'S MANUAL FOR DEMONSTRATION KITS

NATIONAL ASSOCIATION
OF EDUCATIONAL BROADCASTERS
WASHINGTON, D. C.

INSTRUCTIONS FOR SUPPLEMENT ONE TO TEACHER'S MANUAL

for

UTILIZING INSTRUCTIONAL TELEVISION DEMONSTRATION KITS

When the first edition of the Teacher's Manual to accompany the NAEB Instructional Television Demonstration Kits was distributed, it included information on Kits 3 and 5. This supplement contains the additional and new pages required to up-date your present Manual to cover Kits 1 and 2 as well as 3 and 5.

The following directions will help you to make the substitutions.

Remove the following pages from the original Manual	Insert these new pages from Supplement One
i through vi	i through vi
B-1 through B-4	B-1 through B-31
C-1 through C-3	C-1 through C-21

TEACHER'S MANUAL

UTILIZING INSTRUCTIONAL TELEVISION

DEMONSTRATION KITS

SECOND EDITION

produced for

National Association of Educational Broadcasters

by

RADIO - TELEVISION - FILM
The University of Texas

This project was conducted pursuant to a contract with the

U. S. Office of Education
under the provisions of Title VII
National Defense Education Act

"The last 10 years have been the decade of exploration in educational television. NOW WE ARE ENTERING THE DECADE OF UTILIZATION."

. . . The Reverend John M. Culkin

Host-Narrator
Communications Demonstration Center
Hall of Education
New York World's Fair

Single Copy, $2.50. To NAEB Individual Members, $2.00.

WE'RE GLAD YOU HAVE THIS KIT . . .

. . . and we hope you will see others in the series, because we believe these materials can be of practical value to you who are now working with or who contemplate working with television in the classroom.

Certainly your interest in investigating these resources represents an encouraging trend in education today. . . a healthy open-mindedness toward new approaches, when our familiar, traditional habits have proved inadequate or inappropriate. This becomes increasingly important as the swiftly-shifting dimensions of twentieth-century life continue to demand, in those who help youngsters learn, an alert capacity for enlisting new resources and putting them to work in the most efficient ways possible.

One of these resources is instructional television. As we explore ways of getting at its best performance, experience indicates that this helpful medium does not bestow identical blessings in all cases, and we are beginning to see why it may succeed in one classroom to a greater extent than in others and appear to favor some teachers or school systems more than others.

The plain truth is that instructional television works best for those who know how to use it. The object of these kits is to help you join the ranks of those who know, for this is no mysterious body of knowledge, no complex system of new and hard-to-learn techniques. As you view these films and see television taking its place in the classroom, see good teachers working with television in effective ways, you will likely discover that you are already prepared to use it properly. The methods are those which all good teachers know well. Clues to some of the answers are found within you, yourself, in your own personal strengths and weaknesses, your particular capabilities, and your special interests.

You need only acquire some new ways of thinking about yourself and your important work, some guidelines for organizing the help at hand into more useful patterns. We think you will find that in seeking out television's best ways of working, you will have discovered yours, too.

Additional information may be obtained by writing to:

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NAEB Teaching Materials Library
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Highway 81 South
Fargo, North Dakota 58101

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CONTENTS

Kit Number 1

WHAT TELEVISION BRINGS TO THE CLASSROOM

The material in this kit encourages the teacher to see television in its larger dimensions and in its proper context as an important instrument for the communication of ideas. The film reflects some of television's unique advantages and pictures some of the things which television does with particular effectiveness.

WHAT TELEVISION BRINGS TO THE CLASSROOM

Purpose

Important to effective utilization of television in the classroom is a broad view of television in its larger dimensions and in its proper context.

Television, although a relatively-new technology, is another in a long line of efforts to improve the learning process. It can contribute much to improvement at all levels by extending and enhancing the learning experience.

Without suggesting that television is the "be-all-end-all" of classroom resources, that it is without problems, or that it is generally superior to all other learning resources, this film reflects some of television's unique advantages and pictures some of the things which television does with particular effectiveness.

Although television's contribution to learning is not confined to the classroom, as the classroom is no longer the students' only learning environment, it is in the regulated routines of the classroom that we can recognize this medium's encouraging potential for removing some of the obstacles interposed between teachers and their goals.

In a century exploding with children, change, and communications, most school systems, most teachers do have problems. These are not the same everywhere, for, like students, school systems and teachers

have individual differences: but television is a versatile medium and can do much in many situations.

Film Synopsis

The narrator suggests that we watch television doing some of the things it can do, bringing some of the things it can bring to the classroom, while you (the viewer) consider which, among these, would make the greatest contribution toward solving your problems, toward helping you, your classroom, or your school system move closer to your goals.

The major part of the material on screen in this film is made up of illustrative excerpts from television lessons or special materials, based on instructional resources of outstanding quality which have been used in the schools. The narrator discusses briefly, as the film progresses, what each excerpt illustrates, with reference, where appropriate, to the nature of the problem involved or the need fulfilled. These excerpts demonstrate the technical advantages of the medium which add impact, focus, and clarity to any presentation, in addition to television's capacity for bringing unusual or inaccessible materials into the classroom with a minimum of difficulty or delay. Reference is made also to some of the special learning opportunities which television can offer to special groups.

SUGGESTED PROCEDURES FOR USING THIS KIT

If you have not done so, we suggest you read the general material which pertains to all the kits and which is found in the first section of this TEACHER'S MANUAL. Please give particular attention to GUIDELINES FOR EFFECTIVE VIEWING.

AFTER READING THE GENERAL SECTION OF THE TEACHER'S MANUAL which pertains to this kit, you may want simply to give a short introduction and orientation to the film, show the film, and follow it with a brief discussion or question-and-answer period.

If so, these suggested questions may be helpful to you in sparking the discussion:

1. What are some of the problems of the classroom? What are some of the obstacles which come between teachers and their goals? (General problems and obstacles to be found in all or most classrooms. Special problems and obstacles in your own classroom or the classrooms in your particular school or school system.)

2. Do you see ways in which television may help you in solving some of these problems?

3. What do we REALLY mean when we say, "Television does this," or "Television does that," or "Television can do these things. . ."?

4. Are the weaknesses exhibited and criticized in instruction by television inherent in the medium itself or in the basic nature of its contributions? If not, what do these weaknesses reflect?

5. Can television do all of the things which need to be done in instruction?

What are some of the things it does best?

What are some of the things it cannot do or does less well?

6. What are some of the terms used to describe television as it is used for instruction? (EXAMPLES: a medium, a channel, a tool, a resource, an instrument, a teaching device, a learning device.) What do these terms imply for the utilization of television in the classroom?

7. Why is the classroom teacher so important to the selection and utilization of television lessons in the classroom?

8. Which of these two questions suggests the sounder evaluation of instructional television?

   (a) What can television do that the classroom teacher cannot do?

   (b) What can television do that will afford the classroom teacher more time, opportunity, and energy for doing what television cannot do?

9. Review the examples of what television brings to the classroom, as reflected in the film. Can you suggest other examples of what television may offer to the classroom in each of these areas? (Specify things, people, events, places, concepts, or processes as you consider examples of television's effective technical presentation, its ways of extending pupil and teacher experience, its contributions to learning for special groups.)

10. With reference to instructional television, what do we mean when we say:

    (a) One-to-one relationship

    (b) Every child has a front-row seat.

    (c) Finger-tip control

    (d) Television can stretch the child.

    (e) Television can dissolve time and distance.

11. We have seen in the film, examples of what television brings to the classroom. Can these contributions alone bring about learning? What else is needed?

12. "Television can bring the lesson and the child together. But the classroom teacher must apply the 'glue' to make that lesson stick." Discuss the implications of this statement.

13. Is this "glue" the same for all teachers? What are its ingredients?

14. Please name (in a general way) some good preparation activities for a television lesson. (For example: review of preceding material; survey of the content outline for the year, unit or series; vocabulary work; studying the material in the text; listing questions for which pupils need answers; discussion; library reading; practice in viewing skills; defining viewing objectives, etc.)

15. Please name (in a general way) some good follow-through activities. (For example: answering questions, framing thought questions, defining and discussing the main ideas in the lesson, drill, experimentation, problem solving, discussing reactions to the lesson, testing, writing special material, preparing related art work, etc.)

16. Do activities for preparation and activities for follow-through differ in KIND? Can the same activities be used for either purpose? Where does the basic distinction lie? Can you suggest activities which would be appropriate for one purpose but not for the other? What is the main purpose of all activities used in connection with the television lesson?

17. What do you understand to be involved in utilization of television lessons in the classroom? Is there more involved than simply enabling the students to see the television lesson?

18. How does the pupil's experience with television viewing at home affect his experience with formal instruction by television?

19. What factors do you see as influencing the impact and acceptance of instructional television in the elementary classroom? In the secondary classroom?

20. Can you suggest some extracurricular contributions which television may make to the schools?

21. Recall a recent unit of study in your particular subject area. Suggest the content and approach of a television lesson which might have enhanced the learning experience with reference to that particular unit of study.

22. When television enters the classroom, does this mean that we can discard all other resources? Why not?

23. Why do some teachers object to television in the classroom? Do you consider these objections valid?

It, of course, is not necessary to cover all of these questions at the time of the demonstration, and you (or the members of your group) may have questions of your own you would prefer to ask. However, it is hoped that viewers with unanswered questions may be directed to a satisfactory source of information: reports from other members of the group, further discussion, experienced people outside the group, available literature, OR OTHER FILMS IN THIS SERIES.

ADDITIONAL GROUP ACTIVITIES

1. Using available references, personal experience, and other resources, ask the members of your viewing group to report to the group on the history of instructional television, the incidence of instructional television, some of the research which has been done or is being done with reference to instructional television, some specific schools or systems which are using instructional television and how it is being used.

2. Ask members of your group to explore ways of disseminating instructional television lessons. (Open broadcast, closed circuit, live presentation, videotape, tape exchange, etc.)

3. Ask members of your group to report on the physical and mechanical aspects of utilizing instructional television. Perhaps a member of the group or a special small group could arrange the viewers and the television receiver as it should be done in a classroom, explaining the factors to be considered for most efficient reception. (You might explore here also the desirable extent of the teacher's mechanical information.)

4. Divide your viewing group into small groups. Ask each small group to consider one of the specific examples of instructional television's contributions (as reflected in the film) and to suggest or demonstrate other lessons or presentations which would exemplify the same kind of contribution.

5. Devise a role-playing situation, in which members of the viewing group would act out the varied attitudes of teachers and administrators who have differing ideas about instructional television. Ask other members of the group to react to each of these roles.

6. Ask members of the group to describe (verbally or in writing) how they felt about or envisioned instructional television before they saw the film and how they feel after seeing the film.

7. Ask members of the viewing group to demonstrate several utilization procedures or activities which they feel would be valuable in correlating specific lessons (from the film) with the total classroom experience.

ACKNOWLEDGMENTS

We wish to express our appreciation to the following for special cooperation and assistance in the preparation of the film in this kit:

Casis Elementary School and its principal, Dr. M. G. Bowden, for cooperation in the filming of the Sixth Grade Institute.

The following people for lesson design:

Dr. Donald Weismann, University Professor of the Arts, The University of Texas (art lesson)

Dr. Janet McGaughey, Professor of Music, College of Fine Arts, The University of Texas (music lesson)

Dr. Walther Prausnitz, Head Department of English, Concordia College, Moorhead, Minnesota (language arts lesson)

Mrs. Shirlee Dodge and Paul Reinhardt, Associate Professors of Drama, Department of Drama, The University of Texas (costume and choreography lesson)

Dr. Howard J. Arnott, Research Scientist, Cell Research Institute, The University of Texas (electron microscope lesson)

Mrs. Dorothy C. Ellison, Bryker Woods School, Austin, Texas (the "Magic E" lesson)

Mrs. Marye Benjamin, Director of Special Programs, KLRN-TV, Southwest Texas Educational Television Council (primary safety lesson)

Mrs. Ruth McAlister, Supervisor of the Mentally Retarded, Department of Special Education, Austin Public Schools (hidden little words lesson)

Mrs. Timmie Baranoff, Kindergarten, Casis School, Austin (snake calendar lesson)

SUPPLEMENTARY MATERIALS

Printed Materials

FACTS ABOUT EDUCATIONAL TELEVISION, Educational Television Stations Division of, National Association of Educational Broadcasters, 1346 Connecticut Avenue, Washington, D. C. 20036. This is a four-page pamphlet compiled by ETS. The material is constantly being revised to reflect the current status of Educational Television. Single copies are free, however it is available in quantity for a small charge.

EDUCATIONAL TELEVISION, Information Bulletin Number 16-B, Federal Communications Commission, Washington, D. C. 20554, June 1966. This is a fifteen-page bulletin available free from the Educational Broadcasting Branch of the FCC. This bulletin is reprinted as Note Number 1 on Page B immediately following this section.

1966 SCHOOLMAN'S GUIDE TO ETV COMMUNICATIONS, R. Walton Clarke, Jerrold Electronics Corporation, 401 Walnut Street, Philadelphia, Pa. 19105, April 1, 1966. This booklet contains information which is particularly helpful to educators exploring television for instructional use. The basic types of systems are outlined and evaluated; budgetary costs are given. An approach to planning for Instructional Television, based on needs and specific goals, is detailed.

2500 MC A FACTUAL APPROACH, Radio Corporation of America, Camden 2, New Jersey. This brochure is available from the Educational Television Office of RCA. It contains a discussion of the nature of 2500 Mc Signals, Equipment Required, and the Cost Guidelines.

FEDERAL COMMUNICATIONS COMMISSION

WASHINGTON, D. C. 20554

INF BULLETIN NO. 16 - B
June 1966

EDUCATIONAL TELEVISION

In little more than a decade television has become an integral part of quality education. It has brought into the classroom instructors, demonstrations and visual and aural materials that have enhanced almost limitlessly students' learning experiences. It has brought into the home cultural events and public affairs programs heretofore available only to those relatively few who had the means and the opportunities in a metropolitan area or academic complex where these materials were accessible.

The first ETV station went on the air in May, 1953. Exactly thirteen years later, in May, 1966, 115 educational television stations reached a population area of some 140 million persons, and it was estimated that some fifteen million students in more than two thousand educational institutions, including elementary, secondary and higher education, were receiving all or part of their instruction through television. Sixty-four applications had been filed with the Federal Communications Commission for 197 channels in the Instructional Television Fixed Service (2500 megacycle band) since the service was established in 1963. Some 1000 closed-circuit television systems were serving public and private education, industry and various service agencies.

Inasmuch as the Federal Communications Commission does not license or regulate wired closed-circuit instructional systems, this bulletin will be devoted to educational broadcast stations, translators, microwave systems, and the Instructional Television Fixed Service.

HISTORY

Educational broadcasting has played an important role in Federal Communications Commission actions since the beginning of public broadcasting. Educational institutions were among the pioneers in experimental aural broadcast which led to the establishment of regular AM broadcasting following World War I. In 1941 the Commission allocated five channels for noncommercial FM broadcasting, increasing the number to twenty in 1945. In May, 1966, 301 educational FM stations and 24 educational AM radio stations were licensed by the Commission.

In 1949 the FCC invited comments on the advisability of providing channels for noncommercial educational television operation, and on March 22, 1951, as part of a general review of television, the Commission proposed such a course. On April 14, 1952, after extensive proceedings, the Commission opened UHF channels for the expanding TV needs and concomitantly reserved 242 channel assignments (80 UHF and 162 VHF) for noncommercial educational use. These reservations constituted about 12% of the total allocations at that time. The Commission stated:

> "We conclude that the record shows the desire and ability of education to make a substantial contribution to the use of television. There is much evidence in the record concerning the activities of educational organizations in AM and FM broadcasting. It is true and was to be expected that education has not utilized these media to the full extent that commercial broadcasters have, in terms of number of stations and number of hours of operation. However, it has also been shown that many of the educational institutions which are engaged in aural broadcasting are doing an outstanding job in the presentation of high quality programming, and have been getting excellent public response.
>
> "And most important in this connection, it is agreed that the potential of television for education is much greater and more readily apparent than that of aural broadcasting, and that the interest of the educational community in the field is much greater than it was in aural broadcasting . . . The public interest will clearly be served if these stations are used to contribute significantly to the educational process of the nation. The type of programs which have been broadcast by educational organizations, and those which the record indicates can and would be televised by educators, will provide a valuable complement to commercial programming."

The first ETV station to go on the air was KUHT, University of Houston, Texas, on May 23, 1953.

The table of channel allocations, including noncommercial educational reservations, has been revised several times since it was first issued in 1952. The most recent revision, issued in June, 1965 and corrected in March, 1966, provided for 116 VHF and 516 UHF ETV reservations, an increase of more than two-thirds over the previous total of reservations. This table was programmed into a computer, which selected the reservations on an efficiency basis. Deliberately a non-saturated table, this allocations plan was designed for a flexibility which would, in the long run, provide greater opportunity for educational organizations to develop a greater number of stations by permitting future computer selection and assignment of unallocated channels to places where at this time ETV may be completely unanticipated.

The steady growth of ETV is illustrated in the following table of stations on the air at the end of each calendar year:

Year	Number	Year	Number
1953	1	1960	51
1954	10	1961	62
1955	17	1962	75
1956	21	1963	83
1957	27	1964	99
1958	35	1965	113*
1959	44		

(*15 stations initiated, 1 previously licensed station terminated operation in 1965.)

A recent fast-growing supplemental service is the Instructional Television Fixed Stations (ITFS), frequently referred to as the 2500 megacycles service. On July 25, 1963 the Commission established the ITFS for the transmission of instructional and cultural materials to schools and other selected receiving locations, following an experiment in the 2000 megacycle (1990-2110) band in the Plainedge, Long Island school district. The Parma, Ohio Board of Education and the Mineola, Long Island school district were the first to go on the air on September 28, 1964. In May, 1966, some twelve systems were on the air, and 52 construction permits for 156 channels had been granted.

The Commission also licenses translators and boosters for the relaying of ETV broadcasting, and has jurisdiction over microwaving of ETV signals.

ETV BROADCAST STATIONS

About one-third of the ETV broadcast stations are licensed to state or local education systems, about one-third to colleges or universities, and about one-third to community organizations. At first virtually all of the ETV stations were VHF; since 1960 some two-thirds of the CP grants and applications

have been in the UHF spectrum. However, in early 1966 almost 60% of the ETV stations were still VHF. All-channel receiver legislation passed by Congress authorized the FCC to require that all TV sets sold after April 30, 1964 be capable of receiving UHF as well as VHF signals. With the number of VHF unused reservations continually diminishing, the continued growth of UHF ETV stations seems likely. Commission engineers have found that differences in UHF channel numbers will not necessarily result in significant differences between the effectiveness of the respective signals.

ETV station programming varies considerably, from in-school instructional materials to performing arts programs for the home viewing audience. Materials are obtained from many sources, including individual stations, private producing organizations, National Educational Television, the National Association of Educational Broadcasters, and Instructional Television Libraries located in Bloomington, Indiana, Boston, Massachusetts, and Lincoln, Nebraska. Local in-school programs, ideally, are locally produced and may be entire series, individual lessons, or part of a lesson such as a demonstration. Reinforcement materials, such as civic tours, visits to cultural sites, and interviews with prominent persons are frequently included. Cultural programming is broad in scope, and includes public affairs programs, many of a probing and controversial nature, interviews with persons in all areas of life, analysis as well as presentations of the performing and plastic arts, and programs for special groups such as children, or on special subjects. Educational television does not usually compete with commercial television insofar as it does not attempt to reach a mass audience with materials representing a common denominator, but tries to reach a large spectrum of minority viewing groups with special interest programs.

In 1965 and 1966 more and more ETV stations began to seriously explore color capability, and in 1967 National Educational Television expects to begin providing some color programming.

The Federal Communications Commission Rules and Regulations has a special section devoted to noncommercial educational stations. Part 73, paragraph 621, reads:

> "In addition to the other provisions of this subpart, the following shall be applicable to noncommercial educational television broadcast stations:
>
> "(a) Except as provided in paragraph (b) of this section, noncommercial educational broadcast stations will be licensed only to nonprofit educational organizations upon a showing that the proposed stations will be used primarily to serve the educational needs of the community; for the advancement of educational programs; and to furnish a nonprofit and noncommercial television broadcast service.

"(1) In determining the eligibility of publicly supported educational organizations, the accreditation of their respective state departments of education shall be taken into consideration.

"(2) In determining the eligibility of privately controlled educational organizations, the accreditation of state departments of education or recognized regional and national educational accrediting organizations shall be taken into consideration.

"(b) Where a municipality or other political subdivision has no independently constituted educational organization such as, for example, a board of education having autonomy with respect to carrying out the municipality's educational program, such municipality shall be eligible for a noncommercial educational television broadcast station. In such circumstances, a full and detailed showing must be made that a grant of the application will be consistent with the intent and purpose of the Commission's Rules relating to such stations.

"(c) Noncommercial educational television broadcast stations may transmit educational, cultural and entertainment programs, and programs designed for use by schools and school systems in connection with regular school courses, as well as routine and administrative material pertaining thereto.

"(d) An educational station may not broadcast programs for which a consideration is received, except programs produced by or at the expense of or furnished by others than the licensee for which no other consideration than the furnishing of the program is received by the licensee. The payment of line charges by another station or network shall not be considered as being prohibited by this paragraph.

"(e) To the extent applicable to programs broadcast by a noncommercial educational station produced by or at the expense of or furnished by others than the licensee of said station, the provisions of s73.654 relating to announcements regarding sponsored programs shall be applicable, except that no announcements (visual or aural) promoting the sale of a product or service shall be transmitted in connection with any program: Provided, however, That where a sponsor's name or product appears on the visual image during the course of a simultaneous or rebroadcast program either on the backdrop or in similar form, the portions of the program showing such information need not be deleted."

INSTRUCTIONAL TELEVISION FIXED SERVICE

The ITFS provides 31 channels in the 2500-2690 megacycle band, thus relieving the pressure for broadcast ETV allocations when the sole need is for the transmitting of instructional materials over a limited area. The ITFS may also transmit special materials to selected receiving locations such as police and fire stations, clinics and similar places where training or orientation may be enhanced through TV. Especially significant is the fact that up to five programs (because of potential channel shortages in many areas, in May, 1966 rule-making was in progress to amend Commission rules to authorize a maximum of four channels per licensee for a single site) may be transmitted and received simultaneously, thus tending to alleviate the scheduling problem in many institutions.

In 1961 the Midwest Program for Airborne Instruction, Inc. (MPATI) begin a trial period of experimental transmission of educational programs by UHF to participating elementary, secondary and higher education institutions in Indiana and parts of Ohio, Kentucky, Illinois, Michigan and Wisconsin from aircraft circling above Montpelier, Indiana. On June 30, 1965, the Federal Communications Commission, in ruling on MPATI's petition for regular operation on six channels in the upper UHF broadcast band, deemed the Instructional Television Fixed Service more appropriate for MPATI's purposes. Accordingly, the Commission authorized MPATI to apply for six channels in the 2500-2690 mc/s band, and provided for a phase-out of the two-channel UHF trial operation by the end of the 1969-1970 school year. MPATI's application for a CP for six ITFS channels was approved in March, 1966.

ITFS channels are 6 mc/s band width and are organized in seven groups of four and an eighth group of three. ITFS transmitting equipment is relatively lower in cost than television broadcast equipment. However, while the 2500 mc/s signal is transmitted openly, the cost of a special receiving antenna and converter remove the system, for practical purposes, from home use. In addition, ITFS transmission is not intended for reception by the general public.

Because technical considerations and operations differ from that of standard VHF and UHF broadcasting, detailed rules and regulations governing ITFS operations have been established. Among the most pertinent considerations are the following: requirements for eligibility to be a licensee of an ITFS station are the same as those for a noncommercial educational television station; transmitter engineers must be technically qualified, but routine operations may be performed by third-class radiotelephone permit holders; remote control and unattended operation of some equipment are provided for; permission to utilize the signal must be obtained by the potential user from the transmitting licensee.

On February 8, 1965, the Commission held a national meeting of those persons in education and industry interested in the development of ITFS, principally to determine ways to meet increasing demands for channels in metropolitan areas. Partially as a consequence of this meeting, the Commission has considered amendments to the rules relative to channel assignment, engineering data required on application forms, and local planning in channel allocation. As a further consequence of this meeting, and after investigation and study, the Commission established, on October 6, 1965, a national Committee for the Full Development of the Instructional Television Fixed Service to operate on national, regional, state and local levels.

MICROWAVE, TRANSLATORS, CATV

Microwave relay systems utilize narrow, concentrated beams for efficient short range transmission. Educational TV stations may use microwave equipment to provide program circuits between the studio and transmitter (TV-STL), to relay programs between TV broadcast stations (TV Intercity Relay), and to pick up programs that occur outside regular studios (TV Pickup). The rules governing such TV auxiliaries are contained in Part 74, Subpart E of the FCC Rules, "Aural Broadcast STL and Intercity Relay Stations." TV program relay facilities for use by closed-circuit TV systems may be authorized on certain microwave channels in the Business Radio Service under Part 91, Section 91.554 of the Rules. Such stations may also be used in connection with ITFS systems. ITFS stations may be used, as well as Studio-Transmitter program circuits, for relaying programs between ITFS systems in adjacent areas, for delivering ITFS programs to TV broadcast stations, and for relaying TV broadcast programs to ITFS systems.

Translators are devices which change the frequency of an incoming signal and retransmit it on a new frequency, and which may be used to serve areas not served by the primary broadcast ETV station or ITFS system. No significant changes are made in the technical characteristics of the signal other than frequency and amplitude. Many school districts construct and operate translators, and many stations operate their own translators in order to boost their signals into outlying areas for both school and community programming.

CATV stands for Community Antenna Television. These are systems which pick up TV signals and place them on cables to homes or public buildings in a given community which, for reasons of terrain or otherwise, would not be able to pick up that particular signal with as much clarity, if at all. A number of ETV stations are carried by CATV, and many educational institutions utilize this service. Under current rules (Part 74, Subpart K, "Community Antenna TV Systems"), CATV systems are obliged upon request to carry the signal of an ETV station within whose Grade B or higher priority contour the system operates and, with certain exceptions, to afford same day program exclusivity to such stations as against the programs of lower priority stations.

FINANCING

Different types of ownership mean different types of budgets and sources of funds. On the average, stations operated by colleges and universities and by school systems obtain about 75% of their income from direct budgeted support. Stations operated by state agencies receive about 95% of their funds from state appropriations. Community stations, on the other hand, receive about 75% of their support from gifts, grants and services, the latter primarily for the production of in-school programs. ITFS systems are supported by the local institutional licensee, in some instances with the aid of Federal grants.

As early as 1952 the FCC recognized the incipient financial difficulties confronting ETV when it stated:

> "It will admittedly be a difficult and time consuming process in most instances, but the likelihood of ultimate success, and the importance to the public of the objective sought, warrants the action taken . . . Television is clearly a fertile field for endowment, and it seems probable that sufficient funds can be raised both through this method and through the usual sources of funds for public and private education to enable the construction and operation of many noncommercial educational stations. As concerns the costs of operation, there is the possibility of cooperative programming and financing among several educational organizations in large communities."

Public and private financing have greatly assisted ETV. The Ford Foundation's Fund for the Advancement of Education has been one of ETV's principal supporters, and at the present time is providing funds for National Educational Television and percentage-matching grants for community stations.

An ETV finance study completed by the National Association of Educational Broadcasters in 1965 showed direct budgeted support accounting for 54% of the average income of all stations, and gifts, grants and donations providing 23%. About 20% of ETV income is earned through services rendered by stations, such as production contracts, rental of facilities, and consulting. The average yearly budget for all stations was $370,000, although individual station budgets varied from less than $80,000 to more than $2 million. The average percentages for individual items were: salaries, 44%; equipment and engineering, 25%; overhead, affiliations, office supplies and similar costs, 11%; expansion, 8%; procurement of programs from outside sources, 3%; other expenses, 9%.

The Educational Television Facilities Act of 1962 provides matching Federal grants of up to one million dollars per state, to a total of $32 million, for the construction and expansion of ETV stations. This Act--Public Law 87-447--is administered through the Department of Health, Education, and Welfare. Other government legislation--some expressly specifying educational television and some by implication--helpful to both broadcast ETV and ITFS includes the Elementary and Secondary Education Act of 1965, specifically Title III, Supplementary Educational Centers and Services, and PL 815, Construction and Assistance to Federally Affected Areas; The Higher Education Act of 1965, specifically Title I, Grants for Construction of Undergraduate Academic Facilities, Title II, Grants for Construction of Graduate Academic Facilities, and Title VI, Financial Assistance for the Improvement of Undergraduate Instruction; National Defense Education Act, especially Title III, Financial Assistance for Strengthening Instruction in Science, Math, Modern Foreign Languages, and other critical subjects, Title VI, Language Development, and Title VII, Research and Experimentation in more Effective Utilization of Television, Radio, Motion Pictures and Related Media for Educational Purposes; Vocational Education Act of 1963; Appalachian Regional Development Act of 1965, especially Title II, Special Appalachian Programs; Economic Opportunity Act of 1964, particularly Title I, Youth Programs, and Title II, Urban and Rural Community Action Programs; and the State Technical Service Act of 1965.

In a speech to the International Radio and Television Society in the fall of 1964, then Federal Communications Commission Chairman E. William Henry expressed concern for the financial needs of educational television, clarifying the issue as a crucial one. Chairman Henry stated:

> "Educational television has accomplished wonders with the resources at its command. But the time has come to say that it will never realize its full potential until its financial base rises to a radically new level. While that level does not have to be anywhere near the posh plateau inhabited by commercial television, it must provide support for good programming on a realistic basis. That educational television should permanently struggle for subsistence is intolerable . . . we must not fail to supply educational television, one way or another, with sufficient funds. The result is far too important for the future of this industry and this country."

APPLICATION PROCEDURES

The Commission's Table of Assignments, Section 73.606 of the Rules and Regulations, contains the educational reservation status and frequencies of channels allocated to a given city. An educational organization or institution may apply for a reserved or nonreserved channel. Funds available through the Educational Television Facilities Act of 1962, however, are allocated to permittees or licensees on reserved channels only, unless the Construction Permit had been obtained prior to passage of the Act.

If there is no reserved channel in a given community, a qualified group may petition for reservation of an unused assigned channel, for the "drop-in" assignment of a channel, or for the reallocation of a channel from another city. The petition must clearly delineate the purpose of the proposal and show why it would be in the public interest. If the Commission determines the proposal warrants consideration, it will institute rule-making proceedings, and if the assignment is subsequently made, an application may then be made to activate the channel.

Virtually all prospective applicants obtain legal and engineering counsel to assist in supplying required and accurate information to the Commission. Expeditious processing frequently is dependent upon the good order of the application and the completeness, specificity and preciseness of the information.

Applicants for new broadcast stations, license renewals, or major changes in existing facilities, must give local public notice of intent, through a local station (if any) and/or in a local newspaper, as specified in Section 71.580 of the Rules and Regulations.

All broadcast applications must be submitted in triplicate to the Secretary, Federal Communications Commission, Washington, D. C. 20554. After they are tendered, if complete and in conformity with the rules, they are formally accepted for filing and assigned a file number. An application is not acted upon until at least 30 days following acceptance, during which period it is subject to objecting petitions. Processing of applications involve three major areas of examination and review: Engineering, Financial and Legal. The engineering examination verifies calculations to determine if they conform to the technical requirements of the Commission's rules. The Antenna Survey Branch determines whether the proposed antenna structure meets Federal Aviation Agency regulations. An accountant checks the financial qualifications, including adequacy of resources and matters such as discrepencies between estimated and potential actual operating costs, and total costs balanced against particular costs. The financial examination is particularly concerned with verification of the source of funds: whether the applicant has available or committed the funds necessary to construct and operate the station for one year, including Educational Television Facilities Act grants if applied for, or has been given the authority to use the money, bonds, securities or other finances described in the application. Attorneys determine whether the applicant is qualified under the Communications Act to become a licensee. They review technical and economic findings, check the corporate structure, determine if there are any matters before the Commission which might affect the applicant, and analyze the Statement of Program Service.

When an application for a new station or for changes in an existing facility is approved, a Construction Permit (CP) is issued. The permittee has 60 days in which to begin construction, and a period of six months thereafter for completion of the project. If the station cannot be constructed in the specified time an extension may be applied for. Following issuance of the CP the permittee may request call letters, with the first available preference assigned. Within 30 days from the time the CP is issued the permittee must submit an Ownership Report. This report also must be filed with each application for a license renewal, and within 30 days of a change of officer or ownership of the station.

When construction of the facility is complete in accordance with the CP, the permittee may conduct equipment tests, following notification of the Commission. Application for the license may be submitted, accompanied by measurements of equipment performance. At the same time--but at least ten days before regular programming is scheduled to begin--Program Test Authority (PTA) may be requested. PTA is contingent upon approval by the FCC of performance data as detailed in the license application. In effect, PTA entitles the permittee to begin regular station operation and programming, although the license itself is not granted until the license application receives final approval. Renewal dates vary by geographical region; a new licensee must file his first renewal at the first appropriate date; thereafter licenses are normally valid for three year periods.

Education television applications, requests and reports are submitted on the following forms:

FCC Form 340: Application for Authority to Construct or Make Changes in a Non-commercial Educational TV, FM, or Standard Broadcast Station.

FCC Form 341: Application for Noncommercial Educational TV, FM, or Standard Broadcast Station License.

FCC Form 342: Application for Renewal of Noncommercial Educational TV, FM, or Standard Broadcast Station License.

FCC Form 330P: Application for Authority to Construct or Make Changes in an Instructional Television Fixed Station.

FCC Form 330L: Application for Instructional Television Fixed Station License.

FCC Form 343: Application for Authority to Construct or Make Changes in a Television Broadcast Booster Station.

FCC Form 344: Application for Television Broadcast Booster Station License.

FCC Form 345: Application for Renewal of Television Broadcast Booster Station License.

FCC Form 346: Application for Authority to Construct or Make Changes in a Television Broadcast Translator Station.

FCC Form 347: Application for Television Broadcast Translator Station License.

FCC Form 348: Application for Renewal of Television Broadcast Translator Station License.

FCC Form 313: Application for Authorization in the Auxiliary Broadcast Services.

FCC Form 318: Request for Subsidiary Communications Authorizations.

FCC Form 701: Application for Additional Time to Construct Radio Station.

FCC Form 321: Application for Construction Permit to Replace Expired Permit.

FCC Form 323E: Ownership Report for Noncommercial Educational TV, FM, or Standard Broadcast Station.

NETWORKS

At the beginning of 1966 no live national ETV network existed, although National Educational Television (NET) had well advanced plans for such interconnection. The potentials of an ETV national and, indeed, worldwide satellite network were being given realistic consideration. Regional live networks already exist and national tape networks are active.

NET has become known as the "fourth network," not rivaling, but supplementing the three commercial networks. Taped programs are distributed to more than 100 ETV stations. Funded primarily by the Ford Foundation, NET provides to its affiliates five hours per week of newly produced programs, two and a half hours per week of updated children's programs, and access to a large library of programs for re-run. Production is arranged with independent producers or with affiliated stations, with consultation or supervision of the NET staff.

The National Association of Educational Broadcasters (NAEB), through the W. K. Kellog Foundation and the National Home Library Foundation, established in late 1965 a program service to its affiliates under its Educational Television Stations Division. Programs made available from ETV stations and other sources are distributed through a tape network arrangement.

Instructional materials are distributed on a national basis by the Northeastern ITV Service in Boston, Massachusetts, the Great Plains Regional ITV Library, Lincoln, Nebraska, and the National Center for School and College TV (encompassing the former National Instructional TV Library of New York) in Bloomington, Indiana.

At the beginning of 1966, the Eastern Educational Network (EEN) was the only physically interconnected ETV regional network. The EEN supplies in-school programming and about 80% live evening programming to stations in Maine, New Hampshire, Massachusetts and Connecticut, and is developing an extension of its live interstate network on a regular basis to include members in New York, Delaware, Pennsylvania and Washington, D. C. The Upper 6, Midwest Educational Television, a regional network similar to the EEN, was being planned.

Almost every State is in the planning or active stage of an interconnected State network. Alabama and Maine, among others, have almost complete, fully-interconnected systems. South Carolina has an extensive network, combining broadcast and closed-circuit facilities. The Texas Educational Microwave Project covers an important region of that State. Oregon was one of the pioneers in the live network exchange of instructional materials. More than a dozen States have already linked stations toward eventuation of complete intrastate networks.

ORGANIZATIONS

The National Association of Educational Broadcasters, 1346 Connecticut Avenue, N.W., Washington, D.C. 20036, represents radio and television stations, educational institutions and organizations, state agencies, industrial firms, and individuals participating in or interested in educational broadcasting. The NAEB provides consultation, conducts research, distributes information, and publishes materials which aid in the development of educational television and radio. Its operations include: Educational Television Stations Division, National Educational Radio Division, Instructional Division, Individual Members Division, Improvement of Televised Instruction Project, Office of Research and Development, and Educational Communications System Study.

National Educational Television, 10 Columbus Circle, New York, N. Y. 10023, as described earlier, serves virtually all the country's educational television stations. In addition to distribution of new public affairs and cultural programming, NET provides consultation to its affiliates on organizational, programming and administrative matters.

The Joint Council on Educational Telecommunications, 1346 Connecticut Avenue, N. W., Washington, D. C. 20036 (formerly the Joint Council on Educational Broadcasting), is comprised of leading educational organizations, including NAEB, NET, the American Association of School Administrators, the Association of State Universities and Land Grant Colleges, the American Council on Education, the Council of Chief State School Offices, the National Education Association, and the State Universities Association. The JCET acts as a channel of communication between educational interests, broadcasting, and Federal offices and Congress on national issues affecting educational television and radio, and is concerned with cooperative inter-institutional efforts that can be facilitated by any form of electronic interconnection.

The National Center for School and College Television, Indiana University, Bloomington, Indiana 47405, established in 1965, serves as a distribution and information center. Its purposes are to provide wide circulation of instructional programs, encourage quality production of telecourses, establish a research and dissemination service, and initiate a grant service for the production of programs.

The Educational Media Council, 1346 Connecticut Avenue, N. W., Washington, D. C. 20036, is composed of representatives of national educational and business organizations, including such groups as the American Book Publishers Association, the American Library Association, and the Society of Motion Picture and Television Engineers. This group researches and develops plans for projects for the effective use of specialized interests and skills in educational communications at all levels.

The Department of Audio-Visual Instruction (DAVI) of the National Education Association, 1201-16th Street, N. W., Washington, D. C. 20036, holds conferences, conducts research projects, publishes reports and provides consultation on educational media, including television, for its member schools and teachers.

The National Commission on Educational Television, 26 New Street, Cambridge, Massachusetts 02138, was established by the Carnegie Corporation of New York in November, 1965. Its purpose is to study the technical, organizational financial and programming considerations of ETV, to determine the medium's role in contemporary America, and to make recommendations for its future support and development.

The national Committee for the Full Development of the Instructional Television Fixed Service, Federal Communications Commission, Washington, D. C. 20554, was established in late 1965 to serve as a liaison, informational and advisory group on 2500 mc/s on the national, regional, state and local levels. Its members represent, principally, non-profit educational institutions and organizations.

Other groups on the national level, such as the College Conference Division of the International Radio and Television Society, are involved in educational television activities. Many regional, state and local groups, such as the Southern Regional Education Board, are active in educational broadcasting matters.

GOVERNMENT AGENCIES

Special offices relating to educational broadcasting have been established on State and Federal levels.

The Educational Broadcasting Branch, Federal Communications Commission, Washington, D. C. 20554, has as its purpose the facilitation of the development of educational broadcasting, including all forms of radio and television for which the FCC is responsible. The Branch is involved in the development of rules and regulations governing educational broadcasting, is concerned with inter-agency educational broadcasting affairs, and provides informational, liaison and guidance services.

The Department of Health, Education, and Welfare has two offices responsible for the Educational Television Facilities Act of 1962, which provides matching grants for the construction or expansion of ETV broadcasting facilities. The

office of the Assistant to the Assistant Secretary, for Educational Television, Department of Health, Education, and Welfare, 330 Independence Avenue, S.W., Washington, D. C. 20201, administers the program; the ETV Facilities Program, Office of Education, 7th and D Streets, S. W., Washington, D. C. 20201, processes applications.

The Office of Education, Department of Health, Education, and Welfare, 400 Maryland Avenue, S. W., Washington, D. C. 20201, provides grants for educational television through several bureaus. The Bureau of Research includes such programs as Title IV, the Cooperative Research Act, of the Elementary and Secondary Education Act and Title VII, New Educational Media, of the National Defense Education Act. The Bureau of Elementary and Secondary Education administers, among other grants, Title III, Supplementary Educational Centers and Services, and Title V, Grants to Strengthen State Departments of Education, both under the Elementary and Secondary Act. The Bureau of Higher Education provides grants under such programs as Title VI, Financial Assistance for the Improvement of Undergraduate Facilities, Title I, Grants for Construction of Undergraduate Academic Facilities, and Title II, Grants for Construction of Graduate Academic Facilities, all under the Higher Education Act.

The General Services Administration, 18th and F Streets, N. W., Washington, D. C. 20405, administers the Federal Property Act, which authorizes donations of surplus property, equipment and land, which may be applied for by tax exempt radio and television stations.

Many other Federal agencies offer grants, program materials, or production contracts to educational television stations. Among the most active are the Radio and Television Office of the National Aeronautics and Space Administration; Office of Public Information, Department of Commerce; Special Projects Program, National Science Foundation; Audio-visual Office, Weather Bureau; and the Radio-TV Section, Department of Agriculture.

Most States have established educational broadcasting or educational television offices or commissions, principally to coordinate activities for the development of State ETV networks. Many such offices are found in Departments of Education or Departments of Public Instruction. Many county and local school systems and even individual schools have ETV coordinators for the purpose of achieving effective utilization of closed-circuit, instructional fixed and broadcast television. Virtually every college and university, public and private, has a person responsible for ETV development and use. State and local ETV councils and citizens organizations are sometimes quasi-official in that many of their members and directors are public officials.

SOME THOUGHTS ON THE STRENGTHS AND WEAKNESSES OF TELEVISION AS AN INSTRUCTIONAL RESOURCE

Some of the weaknesses exhibited and criticized in instruction by television, are not inherent in the medium or in the basic nature of its specific contributions or total impact. They appear to reflect, rather, as shortcomings in the planning, preparation, and presentation of the materials which the channel conveys. We should keep this in mind when we attempt to assess the potentialities or limitations of television AS A CHANNEL, AS A RESOURCE, AS A TOOL. Implicit in any meaningful statement about what television can or cannot do in the classroom are the qualifications: "well-planned, effectively-presented, appropriate television offering and properly used."

WITH THIS IN MIND, we suggest that:

- Television can enhance the impact and the clarity of things taught. . . through effective technical presentation. It has an impressive capacity for bringing the materials of learning into clear, close, immediate, and meaningful focus.

  Television can provide for each student "the best seat in the classroom." It offers superior opportunity for close-up observation. It can change the physical point of view, from close scrutiny of small areas, to observation of larger areas at greater distances, (or it can reverse these perspectives), smoothly and quickly.

  This flexibility and "finger-tip control" heighten television's capacity for directing attention and enhancing concentration.

  By establishing direct eye contact, television makes possible a one-to-one, personal relationship between the television teacher and each individual student in the classroom.

  Television can enable a class to watch an activity which would be spoiled by direct observation.

  Television can reinforce the important relationships which bring order to learning by (1) superimposition, (2) split-screen presentation, (3) other special technical effects.

Television can transfer reality quickly to the screen, endowing the things seen and heard with the forceful quality of "immediacy."

- Television can extend the experience of the students and the teachers in the classroom.

  It can dissolve time and distance, (1) bringing into the classroom rich resources not normally available to the individual classroom (events, materials, authoritative people), (2) offering those in the classroom access to places where they could not otherwise go.

  Television can offer to teachers and students innovative processes, up-to-date methodology in specific subject areas or in general approaches to education, not yet available in more traditional sources. It can share the best teaching and the best demonstrations.

- Television can help to move students in the direction of self-education.

  It can motivate students toward further exploration and endeavor, by arousing their curiosity, stimulating their interest, sharpening their appetites for the excitement of discovery.

  It can guide and improve their reading by providing background and demonstrations, by helping them to develop new insights.

  Television can encourage individual student involvement and student responsibility for independent learning, by introducing areas for individual exploration, by providing the impetus toward activities designed to modify attitudes and values, by providing a foundation for activities designed to improve pupil skills.

- Television can offer help in specialized areas, providing learning opportunities for those who have special needs and interests.

  It can provide special instruction for slow learners.

  It can provide materials which offer the heightened stimulis needed for accelerated groups.

  It can be used as a "readiness" resource for children soon to enter the first grade.

- Television can make significant contributions in such areas as group guidance, instruction in library use, physical education, driver training, and other such subject areas where extremely large group representations are feasible, and where detailed and close-up demonstrations are impractical or impossible in a large classroom with a live presentation. (This is particularly true where school systems have their own television equipment.)

Some of these things television does better than others. In some of these areas the strength of its contribution is conditioned by the way it is used in the classroom.

But there are some weaknesses inherent in the medium, some things which television is not, and cannot do, despite excellence of planning, preparation, and presentation, despite skill in utilization.

- Television cannot conduct a seminar discussion efficiently.

- Television cannot give specific and direct personal help.

- Television cannot assess the special situation, the special character of a particular class as a group, the special needs and interests of individual students within a particular classroom. Although, for the reasons we have given, the reactions of the viewers are really individual reactions and may thus help us work with individual differences, it is the classroom teacher who must make the assessments and design the activities which take these differences into account.

- Television cannot answer questions, cannot detect confusion and lack of understanding, cannot detect and adjust to degrees of interest, attention span, emotional reaction, levels of awareness or readiness.

- Television cannot offer the warm, personal climate in which the shy child gains confidence, the aggressive child learns to discipline his energies, the rejected child moves toward acceptance, the bright and talented children find the best channels for their abilities. It must leave these important tasks of reassuring, guiding, inspiring, and counseling to the classroom teacher.

- Television has neither brains, integrity, nor feelings--no essential moral or intellectual nature of its own. It has no ability except to communicate, but if used skillfully, it can communicate exceptionally well.

NOTES
Kit Number 1

Where its weaknesses are recognized and its strengths are used to best advantage, television, combined carefully with other resources, can contribute to a new and more efficient distribution of student activities and teacher responsibilities, in which the talents of both and their time in the classroom will be more effectively used.

Kit Number 2

ROLE OF THE CLASSROOM TEACHER

The material in this kit demonstrates that the classroom teacher's role is still a LEADING ROLE when television enters the classroom. The classroom teacher is shown as manager of the learning situation and creator of the classroom climate for learning, with knowledgeable control of all its learning resources.

ROLE OF THE CLASSROOM TEACHER

Purpose

The teacher who uses television most effectively in the classroom knows that instructional television offers differing levels of support to meet different needs. (See the "Responsibility Scale" in this section of the Teacher's Guide.) He knows what these levels are and how they are designed to be utilized in the classroom.

This teacher understands that he is an integral part of the teacher-learning situation where television is used as a major resource in his own field of study. He is aware that his role can be a rich and rewarding one, the more so when he, himself, is fully aware of its various aspects. As he organizes and guides the important classroom activities which enhance and reinforce the television lesson, this teacher demonstrates the variety of his own contributions. He is:

A FULL PARTNER - MEMBER OF A TEAM

The classroom teacher and the television teacher form a working "partnership of specialties." The members of this teaching partnership share equally the responsibility for instruction, as they move together down the same path toward mutually-understood goals. The classroom teacher works with a full knowledge of his partner's objectives, direction, and method of approach, made available to him in the Teacher's Guide.

A PLANNER

In his handling of a subject in the classroom, the classroom teacher largely determines how the televised units will be used, just as he decides to a large extent how he will use the textbook and other resources.

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A PLANNER

In his handling of a subject in the classroom, the classroom teacher largely determines how the televised units will be used, just as he decides to a large extent how he will use the textbook and other resources.

Working with the Teacher's Guide, the calendar, and with state and local courses of study, the classroom teacher plans how best to coordinate his objectives, to schedule his time and that of the class, to coordinate resources and materials to determine the over-all content of the course or unit of study.

A DESIGNER

Knowing that activities which are appropiate for developing skills are not necessarily those most appropriate for developing attitudes or reinforcing knowledge or establishing values, the classroom teacher must design activites appropriate to the behavior which he and the television teacher want to result.

A SPECIALIST IN STUDENTS NEEDS, INTERESTS, STRENGTHS, AND WEAKNESSES

The unique insights of the classroom teacher are invaluable to the successful utilization of televised instruction. Better than anyone else he knows the nature of this class as a group and of his students as individuals.

Drawing upon this knowledge of his students and their situations, he makes sure that his students have what they need to have and know what they need to know to get the most from the lesson on the screen. He organizes the physical classroom in the best way possible to permit maximum viewing.

During the television lesson the classroom teacher is actively involved with his class as a whole and with its individual members, exemplifying attentive interest in the lesson on the screen, observing student reaction, leading responses.

The special knowledge of the classroom teacher provides the guidelines for involving the students in the class in total group activities, in small group activities, and in activities suited to the individual students, to clarify, reinforce, and entend the television lesson.

Providing for the indivdual differences of his own students is one of the most important responsibilities of the classroom teacher, the thing which only this member of the team can do, the thing which this partner is enabled to do better because of the other partner's contribution.

AN APPRAISER AND EVALUATOR

Watching the television lesson and watching his students as they see the lesson, the classroom teacher uses his observations to guide him in working with his class and its members and in making evaluations for the television teacher. Such appraisal prepares the classroom teacher to adjust the lesson to fit his own class. It prepares him also to assist in adjusting and improving the presentation for the good of all students.

AN INDIVIDUAL IN HIS OWN RIGHT

Each classroom teacher has his own interests, needs, strengths, and weaknesses which must be considered in his utilization of television and other resources. One teacher may utilize television in a way which would not be appropriate for another teacher, and the teacher works best with television who understands that there is no one right way, no inflexible sequence of activities. Plans can change with needs and conditions.

A CONTRIBUTOR TO THE PROGRAM

If his school is in an area where television lessons are prepared, there is another aspect of the classroom teacher's role. In planning and producing lessons for the screen, television specialists actively enlist the help of classroom teachers in the community, and the classroom teacher thus often becomes a contributor to the preparation of the television lesson.

The role of the classroom teacher is vital, flexible, specialized, and personal. It is a crucial role in the effective utilization of television.

Film Synopsis

The film reflects the role of the classroom teacher as one member of a teaching partnership. It suggests that this relationship is modified by the varying degrees of responsibility to be assumed by each of these

teaching partners in a variety of situations, with examples chosen from major points on the Responsibility Scale.

Using an eighth grade social studies lesson to represent the broad middle ground of the Responsibility Scale, where the classroom teacher and the television teacher share equal responsibility for instruction in a true teaching partnership, and where most of the television lessons are found, the film demonstrates the richly-varied aspects of the classroom teacher's role as they are exemplified in the utilization of the television lesson. Other examples are used to illustrate the extreme ends of the scale when the television teacher assumes either a small part of the responsibility for the total instruction or he assumes a maximum portion of the responsibility.

SUGGESTED PROCEDURES FOR USING THIS KIT

You may want simply to give a short introduction and orientation to the film, show the film, and follow it with a brief discussion or question-and-answer period.

If so, these suggested questions and discussion topics may be helpful to you in sparking the discussion:

BEFORE SEEING THE FILM

1. How do you see the role of the classroom teacher? Its general nature? Its specific aspects?

2. How do you feel this role is changed or modified by the advent of televised instruction into the classroom? Are these changes or modifications the same in all instances?

3. If a different person were to perform EACH of the classroom teacher's MAJOR duties, how many people do you think would be involved? If the classroom teacher and the television teacher are to share these duties between them, which duties would be more appropriate for the classroom teacher? Which for the television teacher?

4. Do you feel that the classroom teacher's role is strengthened or weakened by the advent of the television teacher? Do you feel it is inevitable that the classroom teacher will be "upstaged" or have to "take a back seat?"

5. Discuss the validity of this question: "What can television do that the classroom teacher cannot do?"

AFTER SEEING THE FILM

1. EXPLORE CHANGES OR MODIFICATIONS IN THE OPINIONS OR ATTITUDES OF THE VIEWERS by re-examining the points raised in questions or discussion before seeing the film. (SEE QUESTIONS ABOVE.)

2. Let each viewer list quickly the questions and comments which developed during the film. From these the chairman may select samples to present to the group for discussion.

3. Why are the television teacher and the classroom teacher frequently designated the "teaching team?" What do you see as the specialized role of each of the team members? Is this the same in all instances?

4. Review the major areas of the Responsibility Scale. What does each of these areas imply as to the role of the classroom teacher? The television teacher?

5. Review the examples of television instruction in each area of responsibility as reflected in the film. Can you think of other lesson examples for each area?

6. What area of responsibility did the eighth grade social studies television lesson represent? Specify the utilization activities reflected from the eighth grade social studies classroom in the film. Toward what goals were these directed? Can you suggest other activities which would be appropriate in utilizing this social studies lesson? (Distinguish between activities which occur to you for general classroom use and those which suggest themselves to you in connection with the special needs of your particular classroom or the needs and interests of your own individual students.)

7. Discuss the selection of televised instructional materials as an important aspect of utilization. What are the major considerations in selecting television lessons for the classroom? Why is it desirable for the classroom teacher to be aware of these considerations and involved in the selection?

8. Discuss the classroom as a "wardrobe of resources." How does the role of the television teacher relate to this "wardrobe?" The role of the classroom teacher?

9. The more imaginative and resourceful the classroom teacher is, the more effective is the utilization of the television lessons. Discuss.

10. What does each viewer see individually as strengths in his own teaching? As weaknesses? (Write these down for personal evaluation. Being specific adds clarity.)

11. How would these strengths and weaknesses influence the ways in which each of the viewers might work as a member of the "teaching team?"

12. Select one example of a television lesson presented in the film. Describe the nature of the lesson and its place on the Responsibility Scale. Then chart the roles of all who might be involved: the classroom teacher, the television teacher, the supervisor, the cadet or practice teacher.

13. Recall a unit of study with which you and your pupils recently have been involved. Describe the classroom activities. Were there ways in which this experience could have been improved or strengthened if you had had more time and opportunity or additional resources? Could television have helped you? If so, how? If not, why not?

Kit Number 2

ADDITIONAL GROUP ACTIVITIES

1. Divide the viewers into "subject area" groups. Ask each group to plan a television lesson in its area of special interest. As each group presents its television lesson plan, ask members of other groups to suggest appropriate activities for classroom utilization of this particular lesson.

2. Ask members of the viewing group to identify special needs or problems in their own classrooms. Ask viewers to suggest ways in which television may be used to help solve some of these problems or meet some of these needs.

3. Ask members of the viewing group to write a profile of the television teacher (specifying characteristics and attributes) who, in their opinion, would make the most helpful "partner" in a "teaching" team."

4. If members of your group have had experience with television in the classroom, ask these people to report on their experience, with attention to its advantages and to possible improvements.

5. Describe a television lesson in each of several subject areas, designating the level of instruction. Divide the viewers into small groups, and ask each group to prepare a segment of the Teacher's Guide which group members feel would be most helpful in connection with a particular lesson at a particular level.

6. Ask members of the viewing group to report more fully on certain aspects of instructional television, using available references, personal experiences, and other resources. Some areas to be considered in such reports might be: curriculum decisions involved in designing and selecting television lessons, obstacles to the use of televised instruction, evaluation procedures, the influence of the classroom teacher on pupil attitudes toward television instruction, the influence of administrators on the classroom teacher's attitudes toward instructional television.

7. Set up a role-playing situation in which one or more viewers would assume the role of a superintendent or principal preparing the classroom teachers in his school system or school to work most effectively with television in the classroom. Other viewers would assume the role of classroom teachers who are favorable or unfavorable to the idea, who have qualms and questions, who need direction in approaching the situation realistically, constructively, and creatively.

ACKNOWLEDGMENTS

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Miss Aida Barrera, Television Teacher, and Hugh Greene, Television Producer-Director, for the design of the Spanish lesson, from which the excerpt in this film was taken.

WORKING WITH THE TEACHER'S GUIDE

As a full partner in a teaching partnership, the classroom teacher will want to know what his partner has planned, to make sure the members of the team are working harmoniously toward goals which both understand and approve.

The TEACHER'S GUIDE will tell him. This is the basic information tool of the partnership. Some guides are more comprehensive than others, but from even the simplest of the Teacher's Guides the classroom partner learns where this lesson fits into the sequence of television lessons, the content area covered by the particular lesson, what the planners intended the lesson to accomplish, and what they intended the pupils to do as a result. Preferably, the Teacher's Guide will make clear the specific elements of lesson content and the television teacher's approach to this material.

If this is a new topic or a complex subject, the classroom teacher will want to know what new words may be introduced in the lesson on screen, perhaps what the television teacher suggests about books to read, about other resources, about related activities.

In his plans for utilizing this television lesson, the classroom teacher will certainly take into consideration these contributions from his colleague. Depending upon his own situation and his own goals, he may want to use some of the suggested activities before the lesson or after it.

However, the classroom teacher's plans must reach beyond the Teacher's Guide and the procedures it suggests. Although the classroom teacher may largely determine the role of the televised units in his handling of a subject in the classroom, there are several factors which must be taken into account.

It is well to plan ahead (how far ahead depending upon the situation and the individual teacher's preference), meshing the Teacher's Guide with the emphases and requirements of state and local courses of study, and considering the calendar, with its messages of special days, of preparations to be made, of resources to be secured, of materials to be supplied or prepared, of activities to be correlated. Marking his calendar, making notations in the margins of the Teacher's Guide, the classroom teacher plans for the weeks or months ahead, making the television lesson an integral part of classroom experience.

NOTES
Kit Number 2

RESPONSIBILITIES OF THE CLASSROOM TEACHER WITH TELEVISED INSTRUCTION

1. - to help learners learn from their television experience.
2. - to get himself ready for the telecast by reading the manual and carrying out its suggestions as far as practicable. (He should use the manual, not follow it slavishly; he should improve on it and, in any event, never ignore it!)
3. - to get his class ready for the telecast by giving purpose of the lesson and alerting students as to the things to watch for (gives listening assignments).
4. - to show class how the telelesson relates to what they're studying.
5. - prior to telelesson, to get materials ready for students to work with on the program.
6. - to make physical arrangements of the room, necessary for telecast.
7. - to observe learners during the telecast (to note where they are puzzeled, where involved, where disinterested, etc.)
8. - to participate with students during the telecast in front of the room (standing, not sitting) actively working with students.
9. - to follow up immediately by clarifying, re-explaining, carrying topic further building on the telecast.
10. - to feed back to TV teacher the reactions of the class at specific points during the telelesson (what went over and what didn't; what was clear and what wasn't clear).
11. - to build and maintain a favorable attitude toward the telecast.
12. - to study the literature in the field (research reports).
13. - to experiment with creative follow-up activities.
14. - to bring books and other materials to class to have available at the conclusion of the telecast.
15. - to use the telecast as a springboard for further learning activities.
16. - to provide ample opportunities for interaction following the telecast between teacher and learners and between learners.
17. - to evaluate the success or failure of Instructional Telvision in his classroom

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IN THE CLASSROOM

TELEVISION OFFERS DIFFERING LEVELS OF SUPPORT

Depending upon the existing needs and upon the situation in the classroom, the school, or the school system, the television teacher assumes varying degrees of responsibility for information, interpretation, motivation, or demonstration.

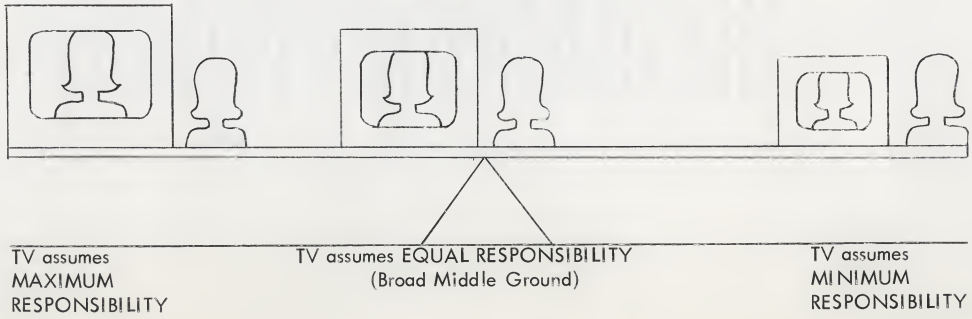
Television is most productive as a learning resource when the classroom teacher is familiar with the ways in which this is done and with what each way means in terms of his own responsibility.

The varying relationships are symbolized in the highly-simplified Responsibility Scale below.


represents Classroom Teacher RESPONSIBILITY


represents Television Teacher RESPONSIBILITY

RESPONSIBILITY SCALE



AT ONE END OF THE SCALE

the television teacher may assume maximum responsibility for instruction where the classroom teacher has no knowledge of the subject, or where the classroom teacher must refresh his knowledge, relearn the subject content, or restore his proficiency in skills. (Example is the lesson in beginning Spanish, seen in part in Film 2.)

THE MIDDLE OF SHARED RESPONSIBILITY

where most of the instructional television is done. This is the "teaching partnership" seen in the eighth grade social studies in Film 2.

The teaching partners have equal responsibility, but each has a major specialty. To the TELEVISION TEACHER go the somewhat more limited and detached tasks of presenting the basic subject content which all the students must have. This partner's primary concern is with eighth grade classroom as such.

The CLASSROOM TEACHER has a more crucial and involved responsibility: to see that this isolated lesson becomes a part of the vital classroom blend. He must weigh and balance resources and take into account special group needs and individual differences. His primary concern is the quality of instruction in THIS PARTICULAR CLASSROOM and the welfare of THESE PARTICULAR STUDENTS.

AT THE OTHER END OF THE SCALE

instructional television makes a definite contribution to the classroom, but, in relationship to the classroom teacher, the television teacher has only a small part of the total instructional responsibility.

In some instances (as in the junior high school art lesson on making kites, seen in part in Film 2) the television teacher provides from time to time expert teaching and unusual resources for a specific course of study, in which the television instruction is directly related to the principal content of the course.

In other instances, the television teacher may make a periodic presentation of valuable and enriching resource material not related directly to the content of the course, but extending the dimension of instruction.

NOTES
Kit Number 1

TELEVISION RECEIVERS FOR CLASSROOM USE

High on the list of problems cited by teachers is poor reception. Sometimes these difficulties are at the transmitting station, but mostly they are at the receiving end. It stands to reason that a teacher must clear up any reception problems as a first step towards utilizing television programs. Fortunately, something can be done in the classroom about some of these problems.

SELECTING THE RECEIVER - Many reception problems can be averted by selecting the right receiver and antenna. Each location will present its own peculiar reception problems. No one receiver can satisfy all requirements. Several manufacturers make special classroom receivers. In some cases these are modifications of their retail models, but sometimes they are completely new designs planned specifically for classroom service. The decisions between a specially designed receiver and a "home-type" receiver depends on the amount and the kind of use the set will have.

Television receivers today are not the delicate, hard-to-maintain instruments of a few years ago, but a school which is not equipped to do its own electronic maintenance and repair should consider a service contract for the set. In all cases a reliable dealer with adequate service facilities should be patronized.

SCREEN SIZE - For average size class a set with a 21" to 24" picture tube is satisfactory. Large or smaller screen size will call for adjustment in the size and placement of the class. A group of 24 to 30, seated in normal classroom spacing, can usually view this size screen comfortably and clearly. If materially larger groups are to view the program, then more than one receiver should be used in preference to a set with a larger screen.

A receiver with an aluminized picture tube and a dark safety glass is definitely preferred for classroom use. This combination gives pictures with brighter whites, richer blacks, and a wide range of grays in between. The safety glass should be mounted so that there is a minimum of glare or reflection on the face of the tube from windows or artifical lights.

CIRCUIT CONSIDERATIONS - Some receivers are noted for their fringe area reception ability. If it is expected that signals from a weak or distant station will be used, then the set's fringe area reception characteristics are important. You can expect to pay a little more for a set with good fringe area reception since it will usually have a more powerful circuit.

Picture stability and ease of tuning is another important factor. Various programs should be viewed when testing the set to make sure that there is a minimum of readjustment necessary when the set is switched from channel to channel or when the programs content changes from basically light to dark pictures. It is normal to expect some "touching-up" of the fine tuning, but the picture brightness and contrast range should remain about the same.

Within the past few years, "printed" or "etched" circuits have come into general use. Both of these type circuits are essentially the same. Where they are used, they replace the bulkier, hand-wired circuit. Both the printed circuit and the hand-wired circuit have certain advantages. The printed circuit is stable, cheaper to manufacture, and is more compact. On the other hand, they are easier to damage and difficult to repair. The hand-wired circuit is stable, rugged, easy to repair, but is bulky and more expensive to manufacture. Either type can give excellent service. Before selecting one or the other, the kind of use the set will have and who is going to service the set should be considered.

CABINET - Receivers are available in three basic cabinet designs; table model, consolette, and console or floor model cabinets. It makes little difference which type is selected as long as certain specifications are met. The cabinet should be such that it can be mounted on rollers or on a roller stand. The set should be placed at a convenient height for group viewing. In high school classrooms the bottom of the screen should be 4 1/2 feet from the floor. This height should be reduced for elementary grades.

The stand should be sturdy and difficult to tip over, but it must be small enough to go through doors and hallways. If it is going to be used on different floors in the building it should be made of light weight material, such as aluminum tubing, so it can be carried from floor to floor.

The cabinet itself should be made of wood or metal. While a good cabinet is important to the durability of the set, the purchaser be careful not to spend a lot of money on needless cabinetry. A well-built, sturdy cabinet of simple design is usually sufficient.

SAFETY CONSIDERATIONS - There are certain safety features that should be standard on all sets. The picture tube should have a bonded face plate or be covered with shatter-proof glass. The back of the set should be enclosed to prevent personal injury or damage to the set. The cabinet should be well ventilated so that the heat generated by the set will not be trapped. The instrument should be transformer powered, free from shock hazard, Underwriters Laboratory approved, and be wired so that it can be grounded. It might be desirable to have a door covering the controls so that they can be pre-set and locked. Some sets also have a lock on the rear cover to prevent tampering with the set.

SOUND - One of the most often overlooked parts of a television program is the sound. The sound is just as important and, in some instances, more important than the picture. The FM sound broadcasting system used in television is capable of excellent quality. In many cases this quality is lost at the receiver. A classroom receiver should have an amplifier that will deliver 5 to 10 watts of undistorted power. The speaker should be a minimum of 8 inches in diameter and mounted facing the front. Some table models use a small speaker mounted on the side or top of the set. If a set with this type speaker is used, then provisions should be made to attach an auxiliary front-mounted speaker to the set. This may be mounted in the stand or in an auxuliary speaker cabinet. The reproduced sound should be clear in all parts of the room, free from distortion, buzzing or hum. A tone control is not generally necessary but if one is available it can be used

to adjust the sound to compensate for room acoustics.

ANTENNA - A good many reception problems experienced in classrooms can be cured or materially reduced with the proper antenna. The problems relating to low signal strength or reflections are the most common ones reported by teachers. If the picture is smeared, hard to keep, "locked in", full of "snow" or filled with multiple images (ghost) it can usually be improved by changing the antenna. This can be accomplished by using an antenna with higher efficiency or by re-orienting the present one.

An outside antenna is preferred for all classroom reception and is generally necessary for the reception of UHF signals (Channel 14 to 83). As the distance from the station increases, the efficiency and height of the receiving antenna must also be increased. Outside antennas can be installed to serve one room or many rooms. The most satisfactory arrangement is to have the antenna connected to a master distribution system serving all rooms in a building. These systems consist of one or more antennas oriented to the desired stations. Amplifiers are used to boost the in-coming signals and these are wired to each room. A set can then be wheeled into the room and plugged into the antenna jacks. Systems like these are the most expensive but they are also the most satisfactory.

All new building construction should include provisions for a master antenna distribution system. There are other advantages to such a plan. By adding properly designed antennas new channels can be received. Signals from stations using UHF channels can be converted in the antenna system so that a standard VHF receiver can be used in the room. In addition a school with a master antenna distribution system is wired for closed-circuit television if this is planned for the future.

Most sets have a built-in antenna. These are generally low in efficiency and are suitable only in very strong signal areas. The "rabbit-ear antenna, whether attached to or set on top of the receiver, is also low in efficiency. This type antenna does have one advantage over the built-in; its size can be adjusted to the direction of the in-coming signal. If one of these minimum-type antennas is used, the set should be located near an outside wall. This is particularly true if the building is of modern steel and concrete construction. Several locations in the room might be tried since these antennas are easily influenced by external forces, such as steel beams, girders, and electrical apparatus. It may be found that a set will operate better in some rooms than others. Receiving rooms located on the side of the building nearest the transmitting station are usually best.

VIEWING SPACE - Television programs should be viewed in the regular classroom. Ideally, these rooms should be acoustically treated and well ventilated. The set should be placed so that glare and reflection from windows or artificial lights do not show in the screen or into the eyes of the viewers. It is not necessary to completely darken the room for television viewing, but the light level should be reduced below normal. Turning off the overhead lights may be all that is required. If the windows have shades, these may be lowered or partially lowered. One of the advantages of television is that the students can take notes while viewing the program. A corner location in the front of the room is usually best. This will give an un-

obstructed view to the entire class. It will also help the sound distribution. Many classrooms have poor acoustics and the corner location will help to cut down on the sound reverberation.

TUNING THE RECEIVER - Some reception difficulties can be corrected through proper tuning of the receiver. There is an instruction manual with most sets. Before attempting to tune the set you should familiarize yourself with these instructions. As a minimum it will identify the controls and their function.

If the set has a fine-tuning control it should be adjusted to give the sharpest, clearest picture each time the channel is changed. The setting giving the best picture should also give the clearest and loudest sound. If this is not so, then the set needs to be adjusted by a serviceman.

In addition to "fine-tuning" the set, it may be necessary to re-orient the antenna. If the set uses the "rabbit-ear" type, it is a simple job to rotate the antenna until the best picture is obtained. If the antenna arms are adjustable, some improvement in the picture quality may be made by changing their length. Higher channels are usually received better on shorter arms, and lower channels on longer arms. By alternately adjusting the fine-tuning and the antenna, an optimum for reception can be reached.

The vertical and horizontal hold controls are used to steady the picture. When they are adjusted properly the picture on the receiver will be "locked" to the transmitter signal. If the picture rolls or "flops-over" or seems to be made up of a series of diagonal jagged lines, one or both of these hold controls may need adjusting.

The brightness and contrast controls are used to adjust the relationship between the black and white elements of the picture. The brightness control sets the overall intensity of the picture and the contrast control regulates the detail of the picture by setting the range of grays between black and white. In adjusting these controls, the brightness control should be turned up until the screen is illuminated. Before making this adjustment, the contrast control should be turned down. When you have the screen illuminated, you can turn the contrast control up until you have a range of gray tones between black and white. There is considerable inter-action between these controls and it may take some practice to get the proper combination. If a balance cannot be achieved on the first attempt, then a new setting of the brightness control should be made and the contrast control readjusted accordingly. A good picture should have rich blacks and bright whites with many shades of gray in between. If the picture is too dark, then the brightness may be set too low. If the picture is dull, lifeless and washed out, the contrast control may be too low. If the black elements in the pictures have a tendency to "bloom" and there are no details in the shadow areas of the picture, or if the whites appear "chalky", it is an indication that the contrast control may be set too high. Much of the picture detail is carried in the grays. Most people have a tendency to adjust sets for too high a contrast. When this is done, the gray areas tend to become black and much of the picture detail is lost. A good test to see if the contrast control is set too high is to turn down the contrast setting and watch the black areas; if details begin to appear, it is an indication that the contrast was too high.

UTILIZING INSTRUCTIONAL TELEVISION

SUPPLEMENT TWO

TEACHER'S MANUAL FOR DEMONSTRATION KITS

NAEB

NATIONAL ASSOCIATION
OF EDUCATIONAL BROADCASTERS
WASHINGTON, D. C.

INSTRUCTIONS FOR SUPPLEMENT TWO TO TEACHER'S MANUAL

FOR

UTILIZING INSTRUCTIONAL TELEVISION DEMONSTRATION KITS

When the second edition of the Teacher's Manual to accompany the NAEB Instructional Television Demonstration Kits was distributed, it included information on Kits 1, 2, 3 and 5. This supplement contains the new and replacement pages required to complete your present Manual to cover all six kits.

The following directions will help you to make the substitutions:

Remove the following pages from the original Manual	Insert these new pages from Supplement Two
i through ii	i through ii
v through vi	v through vii
E-1 through E-3	E-1 through E-13
G-1 through G-3	G-1 through G-20

TEACHER'S MANUAL

UTILIZING INSTRUCTIONAL TELEVISION

DEMONSTRATION KITS

THIRD EDITION

produced for

National Association of Educational Broadcasters

by

RADIO - TELEVISION - FILM
The University of Texas

This project was conducted pursuant to a contract with the

U. S. Office of Education
under the provisions of Title VII
National Defense Education Act

"The last 10 years have been the decade of exploration in educational television. NOW WE ARE ENTERING THE DECADE OF UTILIZATION."

. . . The Reverend John M. Culkin

Host-Narrator
Communications Demonstration
Center
Hall of Education
New York World's Fair

CONTENTS

Kit Number 4

PROMISING PRACTICES

The film in this kit suggests ways of adopting television to some of the more flexible patterns of instruction now emerging, as our schools reorganize space, time, and talent to keep educational excellence intact in the face of change.

PROMISING PRACTICES

Purpose

The responsibilities of education and the demands on our schools, never negligible, have been and will be further compounded by mounting pressures. These pressures stem from an increasingly-complex society committed to continuing and ever-accelerating change.

As an expanding body of knowledge must be made available to growing numbers of children by fewer teachers in more schools, and as students must learn to live effectively in a future of indeterminate nature and dimension, one thing becomes plain. If we are to answer the imperatives in the goals of education--the maximum attainment of each student's talents and the development of each student's skills for continuing, self-directed education--we must settle for no less than the most effective avenues to learning. We must seek out the most efficient ways of correlating all the components of education, to the end that everything we have makes the greatest possible contribution to what we must do toward improving the quality of instruction...for today and tomorrow.

The purpose of this film is to consider where instructional television fits in this context.

Like many other new media of instruction, television has been introduced into the traditional framework of the schools, and utiliza-

tion of this resource for the most part has been shaped to the contours of the self-contained classroom. This film suggests that we may find more efficient ways of utilizing television in our schools as we re-evaluate our traditional practices in the light of contemporary challenges. The film suggests ways of adapting television to some of the more flexible patterns of instruction now emerging, as our schools reorganize space, time, and talent to keep educational excellence intact in the face of change.

Because most of our schools are still predominantly traditional in structure and practice, the majority of the kits in this series give primary consideration to utilizing instructional television in the traditional school setting.

However, increasing numbers of schools are giving careful consideration to the "systems" approach to educational innovation, guided by experimentation and research. The designers of the kits felt, therefore, that the series had a responsibility to reflect this approach and its connotations for the role of instructional television in the educational process.

Film Synopsis

The narrator in Film 4, PROMISING PRACTICES, is Dr. Stanley Donner, Chairman, Radio/Television/Film, University of Texas, Austin, Texas. The film reminds us that adaptability to change is a vital factor

in man's survival. It suggests that responsiveness to change is an essential element in our schools' continuing efforts to improve the general quality of instruction and the quality of individual learning in a world-in-flux. While contemporary architectural style in school buildings and classroom reference to the world of the future, its wonders, and its demands, may tempt us to believe that education is keeping abreast of the times, the film indicates that effective adaptation to our developing environment is deeper and more basic than these superficial signs. Effective adaptation presupposes methods and facilities flexible enough to accommodate the most efficient use of all our resources at all times. It calls for organizing the full range of education's components into combinations appropriate to altering conditions, as we seek increased dimensions in learning for children, increased dimensions in professional stature and personal gratification for teachers.

The film points out that changing perspectives are encouraging new school practices in the utilization of resources, television among them. Improved use of teacher time and special abilities, improved approaches to individual-student learning, improved use of school space are explored, as the film touches on team teaching, large and small group instruction, individual study, block and modular scheduling, instructional materials and learning resource centers. The film points out that schools differ and that practices which hold promise for im-

proving instruction in one school may not be appropriate to the situation in another school. However, there is room under the roof of every school to step back and take a broad look at all the components of our educational system, to see where television and all our other human and technological resources fit best, in a logical, unified, adaptable approach to learning...for tomorrow...and beyond.

SUGGESTED PROCEDURES FOR USING THIS KIT

You may want to give a short introduction and orientation to the film, show the film, and follow it with a discussion period.

If so, these suggested questions may be helpful to you in sparking the discussion.

1. How are new instructional aids introduced in your school or in schools with which you are familiar?

2. How do you as a teacher respond to these aids? If you have had no classroom experience, how do you think you would respond?

3. Do you agree with the description (in the film) of "teachers exhausted by random try-out of increasingly streamlined 'aids'?" Discuss.

4. In the classroom teachers' distorted perspectives with regard to television, do you recognize any of your own attitudes? If not, do you recognize the attitudes of any of your colleagues or acquaintances? Do you feel these attitudes are justified? Why? Under what circumstances?

5. As the film progressed and you saw television in a different relationship, did you experience any change in attitude? Discuss.

6. Do school administrators and teachers as a rule make an effort to take a coordinated view of the various instructional media?

7. Do you recall an occasion on which the correlated use of instructional media was discussed or considered? Describe the occasion. Report what you remember of the discussion.

8. What is the meaning of "technological?"

9. What is meant by "system?" By "subsystem?"

10. When we refer to our educational system, what do we mean?

11. Can you name some educational subsystems?

12. Are "educational subsystems" an entirely new concept? If not, what are some of the educational subsystems with which teachers have been involved for a long time?

13. What do we mean by "the systems approach" to utilizing instructional television?

14. In what context, other than education, do we use the terms "systems" and "subsystems?"

15. Do you feel that the traditional school structure (both physical and organizational) is an obstacle in our efforts to improve individual learning under present conditions? Give reasons for your answer.

16. Do you feel that the "Promising Practices" are really promising?

17. Have you had experience with any of these practices? If so, please report your experience and your evaluation of that experience to the group.

18. In what ways do you feel team teaching would be of value to you, personally?

19. In what ways do you feel that you, personally, might have difficulties with team teaching?

20. What kind of teacher do you feel would be most effective in large group instruction?

21. What qualities do you feel would contribute to the success of a teacher involved with small group instruction?

22. What qualities would make a teacher most effective in working with individual students?

23. How do you feel about machines taking over some instructional functions?

24. What part of your classroom duties do you feel another person could do as well?

25. What part of your duties do you feel a machine could do as well?

26. What is your attitude toward experimentation in school practices?

27. Do you feel experimentation serves a purpose even though the practice in question may prove unsuccessful?

28. What effect does experimentation in school practices have on students? What effect on teachers?

29. Are there ways of controlling these effects?

It is, of course, not necessary to cover all of these questions, and you (or the members of your group) may have questions of your own you would prefer to ask. However, it is hoped that viewers with unanswered questions may be directed to a satisfactory source of information: reports from other members of your group, further discussion, experienced people outside the group, available literature, OR OTHER FILMS IN THIS SERIES.

ADDITIONAL GROUP ACTIVITIES

1. Ask a member or members of your group to report on each of the two books listed below, and recommended especially for reading in connection with this kit.

2. Ask a member or members of your group to prepare a report on the "systems approach" to learning. This may be given added clarity and interest by illustrating (perhaps with overlays) how the various "subsystems" of the body (the circulatory system, the digestive system, the respiratory system, etc.) work together as a functioning whole, although each subsystem has its own specialized functions. The illustration may be, instead, the various subsystems in a structural system: the heating system, the cooling system, the water system, etc.

3. Divide the large group of your viewers into smaller groups. Ask each group to select an area and to organize itself into a "teaching team." Then ask each group to describe to the large group the exact nature of its organization and why it is organized in this way.

4. Ask each of the teaching teams set up above to demonstrate teaching team interaction with reference to a particular lesson or unit of study. (PLANNING)

5. Ask each of these teaching teams to demonstrate teaching team interaction with reference to a particular group of students. (PRESENTATION, LARGE GROUP INSTRUCTION, SMALL GROUP

INSTRUCTION, INDIVIDUAL STUDY, RESEARCH, CLERICAL ASSISTANCE, depending on the role being played by each of the team members.)

6. Ask members of your large group to write a brief paper, commenting on this statement: "It is not enough that teachers should learn to operate instructional machines. They must learn to cooperate with the machines."

7. Ask a member or members of your group to report on modular scheduling, illustrating the report with a large chart showing the schedule for a single student.

8. Ask a member or members of your group to report on modular scheduling from the standpoint of the teacher, illustrating the report with a large chart showing the schedule for a single teacher.

9. Ask a member or members of your group to report more fully on a learning resources center and an instructional materials center, what it is, how it works.

10. Divide the large group into smaller groups. Ask each group to plan the materials for a learning resources center and an instructional materials center.

SPECIAL REFERENCES

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Trump, J. Lloyd and Baynham, Dorsey. GUIDE TO BETTER SCHOOLS. 1961. Rand McNally and Company, Chicago, Illinois.

ACKNOWLEDGMENTS

The Narrator for Film 4 is Dr. Stanley T. Donner, Professor of Communication and Chairman, Department of Radio/Television/Film, School of Communication, The University of Texas. Prior to his association with The University of Texas, Dr. Donner was a Professor of Communication at Stanford University in California. He is a contributing author in Educational Television: The Next Ten Years, published by Stanford Press, 1962, and editor of The Future of Commercial Television, Stanford Press, 1965. Among articles written by Dr. Donner are: "The Curriculum Dilemma," Journal of the National Association of Educational Broadcasters, Vol. 19, No. 1, Jan.-Feb., 1960; "Image and Impact," Television Viewers Annual Conference Proceedings, London, 1963; "Education by Television and Correspondence: The American Experience," Report of a Conference Held at Ditchley Park, Oxford, 1964; "Television and Higher Education in Britain," London Sunday Times. Dr. Donner received his A.B. degree from the Univer-

sity of Michigan, his A.M. and Ph.D. degrees from Northwestern University.

We also wish to express our appreciation to the following for special cooperation and assistance in the preparation of the film in this kit:

Ray Allen Peevey, Technical Staff Assistant III, Radio/Television, The University of Texas, for executing the models of the three schools.

The New York Times, Office of Educational Activities, Filmstrips on Current Affairs, for permission to use material from The Next Twenty Years, a filmstrip issued for May, 1966.

Members of the staff of the National Project for the Improvement of Television Instruction: Dr. Lester W. Nelson, Director; Dr. Richard H. Bell, Associate Director; and Lewis A. Rhodes, Assistant Director.

The following people for appearing in the film:

Bryker Woods Elementary School, Austin, Texas

Mr. Wayne Richards, Principal
Mrs. Pat Oakes
Mrs. Maxine Shoemaker

Burnet Junior High School, Austin, Texas

Mr. Harry J. Gardner, Principal
Miss Joy G. Cox
Mrs. A. Ruth Eads
Miss Matine S. Holbrook
Mrs. Catherine T. Hightower
Mrs. Grayce Alford
Mrs. Karen Morris
Mrs. Judy Evans
Mr. Henry K. Wolff

Kit Number 6

EXAMPLES IN THE SECONDARY SCHOOL

The film in this kit includes excerpts from four different television lessons used in secondary schools. A wide variety of student-initiated activities is suggested as appropriate utilization technique.

EXAMPLES IN THE SECONDARY SCHOOL

Purpose

The film in this kit is designed to reflect some of the ways in which good teachers in secondary schools may help their students use instructional television as a resource for self-directed learning.

The film demonstrates many of the same general principles of utilization illustrated in Films 2 and 5: "Role of the Classroom Teacher" and "A Case Study in the Elementary School." However, its special purpose is to consider the aspects of utilization particularly appropriate to televised instruction in junior and senior high schools, where the same classroom teacher is not with the students for the major part of the school day.

Emphasis in this film is upon motivation (by the television and classroom teachers) of student-initiated activities, many of which take place outside the confines of the school. Utilization of instructional television in the secondary school is seen also as an opportunity to help students develop learning techniques which they, as adults, can employ in utilizing television for their continuing self-education.

The film takes into account the diversity of subject-matter specialties and grade levels likely to be represented among the viewers. While suggesting utilization procedures tailored to specific lessons, it underscores primarily the utilization criteria that cut across subject areas

and grade levels, the wealth of activities available to those who utilize instructional television in the secondary schools, and the reasoning behind the utilization design.

Film Synopsis

The narrator (speaking as a high school principal seen in his office) says that television is a remarkable medium with a significant limitation. While television can capture the most inaccessible, immediate, and intriguing things in a message and carry that message across time and space to the eyes and ears of each individual student in a classroom, the power of television stops there, at the threshold of the brain. Only the student himself, with the skillful help of his teachers, can move that message the last three vital inches...to learning.

Pointing out that secondary school students prefer to be active and independent learners when ably guided and encouraged by their television and classroom teachers, the narrator-principal involves the viewers in a role-playing consideration of some student-directed activities, relevant to four television lessons at the secondary level, toward which students might be motivated.

The lesson excerpts are taken from these lessons:

1. AIR POLLUTION - from the series, PLACES IN THE NEWS, produced at WNDT-TV, New York, by the New York City Board of Education and School Service. Teacher: Jerry Silverstein.

2. THE HAIRY APE - a play by Eugene O'Neill, from the series, FRANKLIN TO FROST, produced by the Midwest Program on Airborne Television Instruction, Inc. (MPATI), Lafayette, Indiana. Teacher: Professor Arthur Eastman.

3. THE GIFT - from the series, PRACTICAL POLITICS, produced by the 21-Inch Classroom, Boston, Massachusetts. Teacher: Dr. Franklin Patterson.

4. COMPUTER SKETCHPAD - from the series, SCIENCE REPORTER, a presentation of Massachusetts Institute of Technology in cooperation with WGBH, Boston, distributed by National Educational Television, New York. Reporter: John Fitch.

(For more details on lesson excerpts, see pages G-12 through G-18)

Using a display board, the narrator-principal gives a graphic portrayal of the extended range of activities suggested by these four television lessons, demonstrating also that effective utilization procedures are determined more by the educational goals to be achieved than by the nature of the specific subject matter involved. The narrator-principal demonstrates also that effective utilization of instructional television takes into account the needs and interests of the students involved, the personal capabilities of their classroom teachers, and the resources available in their school and community.

The final lesson excerpt is offered as an example of the rich resources for secondary students to be found on television (educational and commercial) stations during out-of-school hours, resources which can be correlated with the school's instructional program by alert teachers who recognize the potentialities of these television materials.

SUGGESTED PROCEDURES FOR USING THIS KIT

Your attention is called to the general material pertaining to all the kits, found in the FIRST SECTION of this TEACHER'S MANUAL. You should read it carefully.

You will find it helpful also to read:

1. Some Thoughts on the Strengths and Weaknesses of Television as an Instructional Resource. (Notes, Kit Number1, page B-28)

2. Role of the Classroom Teacher (Varied Aspects). (Kit Number 2, pages C-3 through C-5)

3. Working with the Teacher's Guide. (Notes, Kit Number 2, pages C-13, C-14)

4. Responsibilities of the Classroom Teacher with Televised Instruction. (Notes, Kit Number 2, page C-15)

5. In the Classroom Television Offers Differing Levels of Support. (Notes, Kit Number 2, pages C-16, C-17)

6. Television Receivers for Classroom Use. (Notes, Kit Number 1, pages C-18 through C-21)

AFTER READING THE GENERAL SECTION OF THE TEACHER'S MANUAL, the TOPICS SUGGESTED ABOVE, and THE MATERIAL THAT PERTAINS SPECIFICALLY TO THIS KIT, you may want merely to give a short introduction and orientation to the film, show the film, and follow it with a brief discussion or question-and-answer period.

If so, these suggested questions may be helpful to you in sparking the discussion:

1. How does the role of the classroom teacher in the secondary school differ from the role of the classroom teacher in the elementary school?

2. How do you think this difference might affect the utilization of televised instruction in the secondary school?

3. What similarities do you find in the roles of elementary classroom teachers and secondary classroom teachers?

4. What are some of the common problems of teachers at both levels?

5. What are some of the problems peculiar to teaching at the secondary level?

6. Do you feel that television may be the source of help in solving some of these problems? In what ways? Or why not?

7. Do you feel that the image of the classroom teacher is diminished when television is used in instruction? In whose eyes? In what ways?

8. Do you feel that the image of the classroom teacher is enhanced when television is used in instruction? In whose eyes? In what ways?

9. In your teaching, are there things you would like to do if there were only time and opportunity? Could instructional television play a part in providing that time and opportunity?

10. In your own subject area, what would you like to have instructional television do?

11. Is the secondary school student better prepared or less well prepared to accept television as an instrument of instruction? Explain.

12. What factors in the secondary school curriculum and organization might limit the effectiveness of instructional television and its utilization?

13. What factors in the secondary school curriculum and organi-

zation might enhance the effectiveness of instructional television and its utilization?

14. Instructional television is used somewhat more widely in elementary schools than in secondary schools. Why do you think this is?

15. What kinds of television lessons do you think would be most effective for secondary school students? (This question refers to instructional techniques and methods of presentation rather than to subject area.)

16. What qualities or approaches in a television lesson might impair its effectiveness for secondary school students?

17. Discuss the contributions to be made by the television teacher and those to be made by the classroom teacher in motivating secondary school students toward self-directed learning.

18. What is your opinion of the lesson excerpts seen in the film?

19. What is your opinion of the utilization activities suggested?

20. What other utilization activities came to your mind as you watched the film?

ADDITIONAL GROUP ACTIVITIES

1. Divide the viewers into four groups and assign each group one of the four lesson excerpts seen in the film. Ask the members of each group to review the content and techniques of its lesson excerpt and the utilization activities suggested for that lesson. Then ask that group to evaluate the television lesson, on the basis of the excerpt seen, to evaluate the utilization activities suggested by the film, and to suggest other activities.

2. Divide the viewers into "subject area" groups. Ask each group to plan a television lesson in its area of special interest, specifying the extent of the television teacher's responsibility for instruction. As each group presents its television lesson plan, ask members of other groups to suggest appropriate activities for utilization of this particular lesson.

3. Divide the viewers into "teachers" and "students" for role-playing. Ask each member of the "teacher" group to take the role of the classroom teacher whose students have viewed one of the television lessons shown in the film. Assign "students" to each "teacher." Ask one "teacher" and "student" group to demonstrate large-group utilization of one particular lesson. Ask another "teacher" and "student" group to role-play small-group utilization of one particular lesson. Ask other "teacher" and "student" groups to role-play interaction of

teacher and individual student in utilizing one particular lesson.

4. Ask members of the viewing group to evaluate in writing each of the television teachers seen in the film's lesson excerpts.

5. Ask members of the viewing group to suggest television programs they have seen which they feel would be valuable to secondary school students as out-of-school viewing. Ask other members to suggest ways in which these resources might be correlated with the school's instructional program.

6. If members of your group have had experience with television in the secondary school classroom, ask these people to report on their experience, with attention to its advantages and possible improvements.

7. Ask members of the viewing group to report more fully on certain aspects of instructional television, using available references, personal experiences, and other resources (including other films in this series). Some areas to be considered in such reports might be: curriculum decisions involved in designing and selecting television lessons, obstacles to the use of televised instruction, evaluation procedures, the influence of the classroom teacher on pupil attitudes toward television instruction, the influence of administrators on the classroom teacher's attitudes toward televised instruction.

8. Ask members of the viewing group to describe and discuss the merits or limitations of any other examples they have seen of in-

structional television at the secondary level.

9. If Film 4, PROMISING PRACTICES, is available to or has been seen by your group, ask members of your group to discuss the "systems" approach to instructional television in the secondary school. Is the material in Film 6 incompatible with the material in Film 4? In the opinion of your viewers, why does the film series include these apparently differing approaches to instructional television utilization at the secondary level?

ADDITIONAL INFORMATION ABOUT THE LESSON EXCERPTS

FIRST EXCERPT

Series PLACES IN THE NEWS is a series of weekly telecasts, each approximately 20 minutes in length, produced by WNDT-TV in New York, with Mr. Jerry Silverstein as commentator. The series is made available through the Great Plains Instructional Television Library, in Lincoln, Nebraska. Mr. Silverstein presents background material for understanding crucial events and issues of national or international concern. Each telecast has a focal point. It may emphasize important events occurring in a nation; people involved in current affairs; the tensions which affect these people; the factors which require cooperation; or efforts toward national or international cooperation in solving problems.

The telecasts center around a well-informed continuity person, in the role of the commentator, selected guests who are important specialists in particular fields, and visual or auditory materials that extend or reinforce the presentation of events, issues, or individuals. Questions formulated by students in classrooms near New York, where the programs originate, are selected for comment by the special guest or the commentator.

Lesson In this lesson on AIR POLLUTION, the teacher uses film clips, a recorded song by Tom Lehrer, and comments by the teacher to explore the problem of air pollution in this and other countries, the seriousness of the problem, the nature and expense of current and future pollution control measures. After impressing upon the students the vital importance of uncontaminated air to survival, the lesson considers the nature and dimensions of the earth's atmosphere, "a tiny band of oxygen" which is compared with "A single coat of varnish on the world globe." The lesson illustrates some of the sources of air pollution which have resulted in "the big sewer in the sky," human reactions to this pollution, and the danger it poses to human health and life. After citing statistics concerning fatalities from air contamination in certain spots around the world, and specific diseases or conditions attributable to air pollution, the film considers some of the specific control measures now in effect or being tested for future use. Mr. Silverstein, the teacher-commentator, speaks of the "environment

that is destroying humanity," the urgent need for people to be aroused to the threat and to "prod" officials and government to undertake preventive and "clean up" measures against air pollution. He gives the estimated cost of cleaning up our atmosphere. There is repeated a film clip seen at the beginning of the lesson, picturing a wasteland of smog and smoke.

Lesson Excerpt The excerpt from this PLACES IN THE NEWS lesson on AIR POLLUTION, seen in Film 6, covers approximately the last four minutes of the lesson. Jerry Silverstein, the teacher-commentator, is making the statement: "We are at this moment creating an environment that is destroying humanity." Mr. Silverstein suggests that we must all be aroused to the threat and must "prod" officials and government to take preventive and "clean-up" action. He cites the cost of cleaning up our atmosphere at about two billion dollars. "Remember the opening of our program?" he asks. "It bears repetition." There is seen then, to close the lesson, the film clip with which it began, a segment from the National Film Board of Canada's production, THE FIRST MILE UP.

SECOND EXCERPT

Series FRANKLIN TO FROST is a series of sixty-four telecasts on American Literature, each slightly less than thirty minutes in length, produced and distributed by Midwest Program on Airborne Television, Inc., Lafayette, Indiana. The teacher is Professor Arthur M. Eastman. Of selection, order, emphasis, the Resource Guide (available through the producers) says: "Only important authors have been selected, since it seems easier for the student to remember more, and more of what is first rate, when the study is thus limited. The arrangement is chronological. The principles of importance and chronology will occasionally be violated in the interest of illumination....These principles will also be violated when it seems wise to specialize--to stop our study of individual authors and explore the basic principles underlying the various genres or kinds of writing--Narrative Fiction, Poetry, Humor and Satire, Drama. The emphasis is critical. The goal is to develop a disciplined and pleasurable knowledge and understanding of a series of significant works by American authors, from Franklin to Frost."

Lesson O'NEILL'S PLAY: THE HAIRY APE.

The Resource Guide--American Literature for Senior High School Students, prepared by Arthur Eastman and Lorraine Alkon, devotes its Chapter XIII to Drama, which includes Session 49: The Play Seen, and Session 50: The Play Read. Chapter XIV, Eugene O'Neill and Arthur Miller, has four lesson divisions: Session 51: O'Neill's The Emperor Jones, Session 52: The Hairy Ape, Session 53: Miller's Death of a Salesman: Part I, and Session 54: Death of a Salesman: Part II. Says the Resource Guide: "A Comparison. The Hairy Ape, like The Emperor Jones, is written on two levels: it begins on the literal or physical level and advances into the symbolic or metaphysical. It also concerns a magnificent being, the Hairy Ape, who, like the Emperor Jones, is doomed from without and from within; and it, too, ends in death. Like The Emperor Jones, it is written, not in acts, but in eight scenes."

"The meaning of the play. In The Hairy Ape, as in The Emperor Jones, the central figure is representative of all of us, the Everyman. Thus, his nickname is Yank, and his almost forgotten name is Robert Smith, a name that is average, universal. But Yank, like Jones, is a kind of heroic everyman. He may be short on brains, but he has vitality, energy, courage, toughness. And he identifies his problem with a kind of superb metaphysical precision--the problem of modern man who has lost his old harmony with nature, his old religious security; the problem of alientation, of not belonging.

"Like The Emperor Jones, The Hairy Ape seems to suggest that man cannot win. So the Hairy Ape's environment from first to last is like a jail or prison--in the stokehole, which looks like a cage; in the jail itself; in the cage, finally, at the zoo.

"Mode. The Hairy Ape differs from The Emperor Jones in mode. Jones is a tragedy. This play is a comedy. Yank may get hit but he never gets hurt. Hence we feel for him none of the pain we felt for and with Jones. So it is that life does not end for the Hairy Ape with a bang--as it does for Jones. Nor with a whimper--as it might for a lesser being. But with a wry joke at the absurdity of man's condition."

Lesson Excerpt The excerpt seen in this film covers approximately five minutes from the latter part of the play's

first scene. Professor Eastman has introduced the lesson topic, O'Neill's play, The Hairy Ape, has commented on the nature and meaning of the play, and has set the first scene, which takes place in the firemen's forecastle of a ship, where live the primitive brutes, men long on brawn and short on brain, who stoke the coal for the ship's boilers. At the play's beginning, the men have returned from shore leave in New York. Professor Eastman's comments are alternated with Yank's speeches from the play, given by an actor in a shadowbox, which is part of the television lesson setting. The first scene not only shows us Yank's habitat. It defines his values. From Yank's speeches it is learned that Yank rejects the values of moderation, the values of the golden past when sailing was a communion with man and nature, the values of home, love, and women, and the values of political amelioration. But he likes the life and work that he has. It makes sense to him, and he explains this as he speaks of the old sailor, Paddy: "I belong and he don't." Our lesson excerpt is Yank's expression of faith, in which he describes himself as "young" and "new." Says Yank: "Everything that makes the world move can't move without somepin' else. And that's me. You get down to the bottom and that's me. I start somepin' and the world moves. I'm smoke and steam.....I'm the muscles in steel. I run the works." Our lesson excerpt ends as Professor Eastman begins his introduction of the play's second scene.

THIRD EXCERPT

Series PRACTICAL POLITICS is a series of four dramatic television lessons for senior high school students. The series was produced by The 21-Inch Classroom, and is distributed by the Eastern Television Network, Cambridge, Massachusetts. According to the Teacher's Guide, the series is designed "to make students aware of our political process and to show them ways in which they can participate in this process in their own communities--now and later. The aim is to stimulate thinking and to spark discussion rather than to give pat answers or to pile up facts."

The area of politics treated in the series, as distinguished from government, lies in the ELECTION of our governmental officials. It is concerned with fundamental, down-to-earth details in which the individual is the key to success or failure. It concerns party organization, precinct work, campaigning, and all the activities involved in electing candidates to office.

Designers of the series say: "Drama has been chosen as the medium which shows best the motives, the interplay of character and situation, the essential 'humaness' of practical political action. By watching these programs the student has an opportunity to come closer to the realities of practical politics and to realize some of the underlying problems of political life."

The four fifteen-minute programs tell the story of a young candidate for the office of state representative. They are chronologically arranged to correspond with the timing of a campaign from June to November. Beginning with the candidate's first contact with politics, each program shows an incident in the campaign which involves a problem to be solved. Each program ends at the point in the story where a decision must be reached, but the decision is not stated.

Dr. Franklin Patterson introduces each lesson, provides a transition between lessons, and indicates sections which may be of particular interest. The students' attention is directed to the political problem of getting elected, rather than to any particular issue.

Lesson LESSON 3, THE GIFT, is planned to show the practical problems of financing a campaign. It raises the question of where a candidate draws the line on campaign contributions. The time is September. The place in Scene 1 is the patio of a golf club, looking out over the eighteenth hole. The place in Scene 2 is Archer's home, that night. Bill Archer's opponent is taking the lead in the campaign because he is able to buy TV time and Archer is not. As they talk after a golf game, Frazer and Walker (businessmen who are supporting Archer's campaign) volunteer to put up $500 apiece for TV spots. They invite Archer to play golf with them the following week, but Fred Hale, the town committee chairman, vetoes the idea, pointing out that the club's membership is restricted and the fact that Archer is seen there may hurt his campaign.

At Archer's home that night, Archer's wife, Susan, Fred Hale, and Fred's vice-chairman, Ellie Carver, are working on campaign business. Archer has just received a call from a man who is urging him to take a stronger stand on civil rights. Fred brushes off the idea. Ellie hands Archer the application for TV time. Susan hands him the checks to endorse saying that he might as well sign

since they're overdrawn already. Paul (Archer's brother) asks Archer what promises he made to Frazer and Walker in return for these checks. They argue as to whether or not Archer is obligated to the two men if he accepts their checks. Fred hands Archer a pen. Archer looks at the checks and the TV application wondering whether or not to sign them.

Problem: SHOULD ARCHER ACCEPT THE MONEY?

Lesson Excerpt The lesson excerpt seen in this film begins at the end of Scene 1, just as Archer receives the money for the TV time. It continues for almost five minutes to the close of Scene 2, where Archer is looking at the checks and the TV application, wondering how to resolve the problem of the campaign contributions.

FOURTH EXCERPT

Series SCIENCE REPORTER is a continuing television offering, produced by the Massachusetts Institute of Technology in association with WGBH, Boston. There are thirteen programs to each of the SCIENCE REPORTER series, and these programs are distributed by National Educational Television, New York. Each of the videotaped programs is one-half hour in length. Host for the series is John Fitch, M.I.T.'s Science Reporter, who travels about the country reporting on progress and problems of scientific research and technology. The range of subjects is wide, and the men to whom Science Reporter Fitch introduces his viewers are national and international authorities in their highly-specialized fields.

Lesson COMPUTER SKETCHPAD (Science Reporter Program 42) features a highly-sophisticated computer programing system seen in the Lincoln Laboratory at Massachusetts Institute of Technology. In this program, we are told, a man is talking to a computer in a way that is different from anything that has been done before. Drawing with a light-pen, the man will be using a graphic language which is called "Sketchpad." As the M.I.T. representative describes the process: "You are seeing a designer effectively solving a problem step by step, and he will not, at the outset, know what his problem is, nor will he know exactly how to solve it. He

and the computer will be in the fullest cooperation." When asked how this differs from a regular computer, the representative says that the computer previously has been, in a sense, a very elaborate calculating machine, but that here the computer is more like an assistant, with which man can communicate by drawing sketches on an oscilloscope. Reporter John Fitch talks to Mr. Timothy Johnson of M.I.T. about how the system works. Then he talks to Dr. Larry Roberts about how the system can be used to draw and perfect flow-charts.

Lesson Excerpt This four-minute segment of the SCIENCE REPORTER program on COMPUTER SKETCHPAD shows the designer drawing various geometric figures with the light-pen. The computer then indicates, by the image on the oscilloscope, how the various figures will change as perspective is changed or dimension is altered. Given a three-dimensional object, the computer can show how the object will look as seen from four separate views. Given two three-dimensional objects, the computer can show on the Sketchpad how these objects will relate to each other in various visual perspectives and how they will relate as one passes through and intersects the other.

ACTIVITY LISTS SEEN ON MAGNET BOARD IN FILM

1ST EXCERPT		2ND EXCERPT		3RD EXCERPT	
AIR POLLUTION:	Investigation	THE HAIRY APE:	Discussion	THE GIFT:	Debate
	Report		Drama		Investigation
	Graphic Interpretation		Reading		Informed Guests
	Informed Guests		Analysis		Reading
	Interviews		Writing		Writing
	Writing		Investigation		Analysis
	Observation		Report		Evaluation
	Experimentation		Graphic Interpretation		Individual Activities
			Role-Playing		

COMPOSITE LIST

- Investigation
- Report
- Graphic Interpretation
- Informed Guests
- Interviews
- Writing
- Observation
- Experimentation
- Discussion
- Drama
- Reading
- Analysis
- Debate
- Role-Playing
- Evaluation
- Individual Activities

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